November 1987

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Railway Age

...for the new age of railways and rail transit

BN's Expediter trains: Good service builds business

Brendan McNally
Congressional Info Service CIS
4520 East-West Highway
Bethesda MD 20814-3389
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NJ Rail Transit: Girding against gridlock

The "new" railroads: What's the outlook?

November 1987

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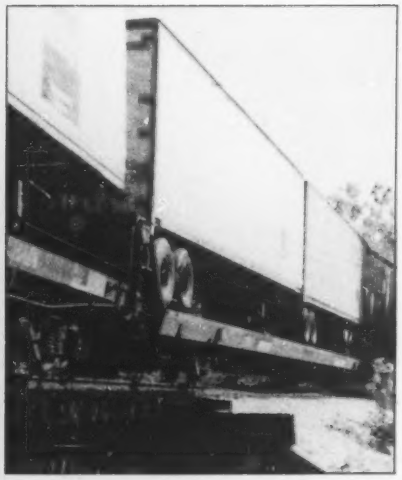

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Inside

Osage to Waterloo and back

LUTHER S. MILLER

Jack Haley used to say, with that charismatic grin that made him a favorite on the speaker's circuit, "I'm the only railroad president I know who wrote a $1 million check and who moved from a perfectly nice house on the banks of the Potomac to a one-room apartment over a bar in Osage, Iowa, in order to get into the railroad business."

Haley did not stay long in Osage, headquarters of the 113-mile Cedar Valley, his first venture in the new and booming business of regional railroading. With the help of the General Electric Credit Corp., he negotiated a $75-million deal for a railroad seven times as big, a piece of the Illinois Central Gulf which he named the Chicago, Central & Pacific, and he moved to Waterloo, Iowa, to run it.

Haley's success in forging favorable labor agreements and his folksy, hands-on approach to shipper relations won thunderous applause across the land, particularly among those who felt that the Class I's had become too big and unwieldy to deal effectively with either their employees or their customers. It was applause that all but drowned out some profoundly troubling noises in the background.

The fact is, CC&P was undercapitalized and overconfident, and that is not entirely hindsight.

Chicago Central's success was never viewed by railroad people—including Jack Haley—as anything approaching a sure thing. As *Railway Age* reported last December, after talking with the sage of Osage and Waterloo: "Haley urgently needs a surge in revenue to carry his load of debt. He borrowed $75 million to secure 674 miles of track, 99 miles of trackage rights, 80 locomotives, and assorted equipment. The net liquidation value of the line, considered redundant by some railroad analysts, is estimated at $32 million."

Haley himself told *Railway Age:*

"In a few years you can say, 'I heard him say he was going to do it that way, and he went bankrupt.' Or you can say, 'I heard him say he was going to decentralize the railroad, and he has succeeded.' But you won't be able to say that I just kept doing it the same way. That just won't work. I've laid it on the line for $75 million, and I have the right to fail."

The one flaw in that prescient statement was that it didn't take a few years for at least the preliminary verdict to come in. Last month, after an unsuccessful effort to take the CC&P into bankruptcy and thus fend off his chief creditor, Haley was back in Osage, musing on what had gone wrong at Waterloo. He shared his thoughts with *Railway Age*. What he had to say is part of our story exploring the outlook for regional railroading in the wake of the CC&P affair (p. 42).

Haley can and does pinpoint a number of reasons for his failure at Waterloo, but he offers no excuses. He may have been given bad advice, but he accepted that advice, he points out. Is he a defeated man? Far from it. Knowing all that he now knows about regional railroading, he told us, he can't wait to buy another one.

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Editorial and Executive Offices
New York, N.Y. 10014, 345 Hudson Street
212/620-7200 (Telex 425421 SIMB UI)

CHARLES H. ELLWANGER, Publisher
LUTHER S. MILLER, Editor

Publishing Director: Robert G. Lewis

Associate Editor: Robert J. Kudzma
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Western Editorial Offices
Chicago, Ill. 60604,
175 W. Jackson Boulevard, Suite A-1927
312/427-2729

GUS WELTY, Senior Editor
Intermodal Editor: Bill Fahrenwald
Engineering Editor: William J. Semioli
Editorial Assistant: Wanda Welty

Washington Office
Silver Spring, Md. 20901, 10214 Southmoor Dr.
301/593-2924

Associate Editor: John H. Armstrong

International Offices
Falmouth, Cornwall, TR11 4RJ, England
P.O. Box 8 (Telex: 45320 IRJFAL G)
Telephone: 44-326-313945

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Market Outlook

Equipment

Burlington Northern Intermodal: Is leasing 1,000 45-foot-by-102-inch new Fruehauf trailers from Transamerica Transportation Services, Inc. Half of the trailers incorporate a low silhouette header and coupler permitting a 110-inch door opening height and increased cubic capacity.

Norfolk Southern: Placed an order with Kipp for 189 programmable, microprocessor-controlled TRACK-MASTER wheel flange lubrication systems. The order followed a year of tests during which 25 units were installed on NS SD-60 locomotives. The units were custom-programmed to the territories being traveled.

Olin Corp.: Acquired 200 16,500-gallon-capacity caustic soda tank cars, built by Trinity Industries and valued at more than $9 million, through a lease arrangement with GATX. Olin will use the cars in conjunction with a new chlorine and caustic soda producing plant in Niagara Falls, N.Y. Cars have corrosion resistant paint, interior linings, stainless steel valves, and positive slope to center design for fast unloading.

Facilities

BC Transit: Awarded a contract to H.J. Skelton (Canada) Ltd. for special rail expansion joints to be used on the Fraser River suspension bridge portion of the Skytrain extension. Skelton is the Canadian representative of Schmiedewerke Krugg-Klöckner of Bochum, West Germany, which manufactures the joints.

Conrail: Is investing $1.35 million in a new intermodal terminal at Rochester, N.Y., that will have capacity for 38 railcars and parking space for 157 trailers.

Los Angeles County Transportation Commission: Awarded a $20 million contract to Homer J. Olsen, Inc., of Union City, Calif., to construct a subway from 12th and Flower Streets (at grade) to 7th and Flower Streets (underground) as part of the 21-mile, $690-million Long Beach-Los Angeles light rail project.

Metro-North: Awarded a $6.5-million contract to a joint venture of Kaiser Engineers and Envirodyne Engineers to manage the $94-million rehabilitation of the Park Avenue tunnel in New York City.

PATH: Will invest $40.4 million in a new Central Control and Communications System (CCCS). Philip D. Kaltenbacher, chairman of the Port Authority of New York and New Jersey, said the new system "will allow centralized control of the new and upgraded electrical substations and switching stations which provide power for increased train operations, passenger stations, and the new tunnel emergency ventilation system. It will also provide PATH with a more reliable and efficient state of the art communications system." The CCCS will use a fiber optic network to link remote power locations with the existing John F. Hoban Operations Control Center in Jersey City.

Toronto Transit Commission: Awarded a $23.9-million (Canadian) contract to Giuseppe Torno Engineering for construction of the first section of the 2.13-km Harbourfront LRT.

Revenue freight carloadings

Commodity	Oct. 10 week	Oct. 3 week	Sept. 26 week	Sept. 19 week	Sept. 12 week
Grain	34,016	35,121	34,916	33,682	28,188
Other farm products	4,837	3,947	4,175	4,004	3,160
Metallic ores	21,645	22,326	21,617	18,140	17,652
Coal	122,081	124,502	124,711	124,220	110,446
Crushed stone, gravel and sand	17,797	18,174	17,882	17,554	13,998
Nonmetallic minerals	9,794	10,173	10,606	10,816	9,463
Grain mill products	11,636	11,460	11,306	11,317	9,535
Food and kindred products	11,537	12,036	11,782	11,812	9,518
Primary forest products	10,813	11,322	11,206	11,120	8,900
Lumber and wood products except furniture	7,764	8,452	8,439	8,510	5,860
Pulp, paper and allied products	12,226	13,271	12,431	12,656	11,704
Chemicals and allied products	26,067	27,532	27,209	27,603	23,497
Petroleum products	4,656	4,404	4,993	4,814	4,622
Stone, clay and glass products	11,783	11,774	11,655	11,909	10,352
Coke	5,254	5,385	5,068	5,092	5,081
Metals and products	9,617	10,841	10,073	9,748	8,433
Motor vehicles and equipment	20,963	20,746	19,737	19,071	15,971
Waste and scrap materials	9,751	9,698	9,769	10,091	7,723
Forwarder and shipper assn. traffic	3,048	3,340	3,092	3,123	2,568
All other carloads	84,291	85,154	85,700	81,177	66,119
LCL traffic	—	—	—	91	101
Total Cars Loaded	**439,575**	**449,658**	**446,357**	**436,550**	**373,891**
% change from previous year	10.9	11.6	8.5	8.5	7.3
Estimated revenue ton-miles (billions)	19.3	19.7	19.5	19.4	16.4
% change from previous year	11.7	11.0	10.3	9.5	6.6

Total:	1987	1986	% change
41 weeks	722.7	687.9	5.1

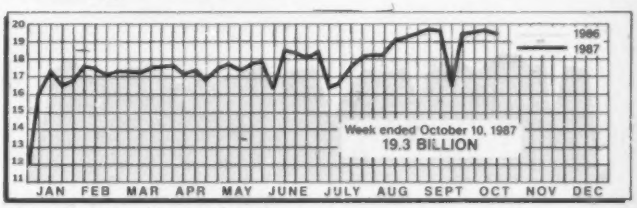
Piggyback loadings

	Oct. 10 week	Oct. 3 week	Sept. 26 week	Sept. 19 week	Sept. 12 week
Trailers/containers	108,916	110,175	108,454	106,023	89,396

Cumulative total, 41 weeks		% change from 1986
Trailers/containers	4,028,904	3.1

Rail freight traffic trends

Billion ton-miles (Estimated)



Source: Association of American Railroads

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THE ARCHITECTS OF CHANGE:

W. Graham Claytor, Jr.

How to keep Amtrak going— and growing

'88 outlook: View from the top

Brendan McNally
Congressional Info Service Inc
4520 East-West Highway
Bethesda MD 20814-3389
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December 1987

Railway Age

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Features

29 Architects of change: W. Graham Claytor, Jr.

To help keep the nation's intercity rail passenger system going—and growing—Amtrak's CEO proposes a trust fund: "A penny a gallon on the gasoline tax would give us enough capital to meet all of our needs and allow reasonable expansion."

33 1988 Outlook: View from the top

Railroad CEOs see '88 as another year of sizing down and shaping up. As they strive to become more competitive, they're looking hopefully to the bargaining tables—and worriedly at rereg legislation in Congress.

40 Traffic trends: Grain, intermodal set the pace

An analysis by Atlantic Systems, Inc. shows that unexpectedly strong traffic has pushed up demand for nearly all car types, especially equipment for grain and chemicals.

42 Dispatching, "Stars Wars" style

At Omaha, UP will consolidate dispatching for the entire system, using US&S technology pioneered at Portland where the ctc center is known as the "Star Wars" room.

45 Labor/management: Time for tough decisions

Labor expert Ben Fischer finds "strong reasons for each railroad and its employees to deal directly with each other rather than through intermediaries..."

48 Personal injuries: Bio-mechanics to the rescue

Over-exertion causes problems painful to both workers and employers. The dollar cost to railroads is over half a billion a year. Now a new science suggests remedies.

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Inside

For suppliers, less could mean more

LUTHER S. MILLER

Does the continued shrinkage of the Class I railroad system portend a corresponding shrinkage of the market for railroad equipment, materials, and services? At least part of the answer to that question will be found in the 1988 outlook statements furnished to *Railway Age* by the chief executive officers of the major railroads (pp. 33-37).

CSX Transportation is trimming 1,600 miles from its system, through line sales or abandonments—but CSX isn't trimming its capital budget. CSX, which invested $490 million in capital improvements in 1987, has budgeted $550 million for 1988. "We will be concentrating on our core lines," President and CEO John W. Snow told *Railway Age*.

Burlington Northern, which is also slimming down, reports that it will have a capital program in 1988 "somewhat bigger" than 1987's $380 million. With traffic strong and equipment tight, BN will spend more on rolling stock as well as on roadway and signaling and communications, says President and CEO Darius W. Gaskins, Jr.

It is too early to say if this trend will hold true for all railroads. But it is not too early to say that healthier railroads have bigger capital appetites—and a healthier industry is what restructuring is all about in the first place.

Carbuilders are already seeing the making of a boomlet, if not exactly a boom. Orders for 4,074 cars in this year's third quarter (p. 13) brought orders for the first nine months to 12,714 vs 9,516 for the comparable 1986 period.

It's an overworked phrase, but "cautious optimism" is the only honest way to describe the immediate outlook as it is seen by the CEOs. Traffic has been considerably stronger in 1987 than anyone anticipated it would be a year ago, and the railroads have posted important new gains in efficiency and productivity. But rate wars with the truckers continue to erode revenues. Caution is further dictated by the uncertainty of the outcome of the battles railroads must wage next year at the labor bargaining tables and in Congress.

The situation in Congress is particularly murky and troublesome. It isn't probable that Congress will enact into law the bizarre piece of legislation that came out of the House Transportation Subcommittee on Nov. 5, but it's possible—and if that comes to pass, all bets are off.

AAR President William H. Dempsey says passage of that legislation could result in abandonment of up to one-third of railroad mileage, including main lines. AAR economist and assistant vice president Frank N. Wilner calls the legislation "simply a formula—intentioned or not—to restore what we thought were the dear dead days beyond recall. Most chilling is that the legislation represents a blatant taking of the rail industry's private property for redistribution to certain other industries—industries which, by whatever financial test, make the rail industry woefully anemic in comparison."

If you're wondering what monstrous nostrums Congress could concoct to bring about such melancholy forecasts, see Watching Washington (p. 17).

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212/620-7200 (Telex 425421 SIMB UI)
Fax: 212-633-1165

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Chicago, Ill. 60604,
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312/427-2729
Fax: 312-427-3014

GUS WELTY, Senior Editor
Intermodal Editor: Bill Fahrenwald
Engineering Editor: William J. Semioli
Editorial Assistant: Wanda Welty

Washington Office
Silver Spring, Md. 20901, 10214 Southmoor Dr.
301/593-2924

Associate Editor: John H. Armstrong

International Offices
Falmouth, Cornwall, TR11 4RJ, England
P.O. Box 8 (Telex: 45320 IRJFAL G)
Telephone: 44-326-313945
Fax: 011-44-326-319066

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Market Outlook

Equipment

Conrail: Ordered 30 4,000-hp, four-axle, microprocessor-controlled B40-8 locomotives from General Electric for delivery in the second quarter of 1988. The order is valued at more than $36 million.

Texas Industries: Was accepting delivery last month of the final 50 cars of an 80-car fleet of Twin-Hoppers® supplied by Pullman Leasing. They will be used in cement service from TXI plants in Texas and Mississippi to bulk distribution terminals in the South and Southeast.

Trailer Train: Ordered 100 five-platform articulated Impack cars from Bethlehem Steel's Freight Car Division. Impack is a patented design of Itel Rail Corp. Delivery is to begin in the first quarter of 1988.

Facilities

Bay Area Rapid Transit District: Awarded a $3.7-million contract to C. Overaa & Co. of Richmond, Calif., for construction of maintenance shops at Daly City Yard.

Los Angeles County Transportation Commission: Awarded a $13-million contract to Herzog, a St. Joseph, Mo., contractor, to install 16 miles of track for the Long Beach-Los Angeles light rail project.

Port Authority-Trans Hudson: Will spend $33 million on a major rehabilitation of the Hackensack River Bridge, a link in the PATH rail system between Newark, N.J., and the World Trade Center in Manhattan. Conrail transferred ownership of the 58-year-old bridge to PATH this year. Malfunction of the lift mechanism has been a frequent cause of delay to trains.

Santa Fe: Plans to begin operation in mid-December of a new intermodal facility at Galesburg, Ill. The single-track ramp will be able to handle 12 cars and will be equipped with a side loading/unloading unit; space is available for installation of a second track to double capacity. Also planned for the terminal are construction of a regional yard office and provision of lighted parking area for 175 trailers.

Revenue freight carloadings

Commodity	Nov. 14 week	Nov. 7 week	Oct. 31 week	Oct. 24 week	Oct. 17 week
Grain	30,337	31,600	30,772	32,368	34,690
Other farm products	3,896	4,058	4,005	4,501	4,708
Metallic ores	19,412	18,307	20,337	19,710	20,460
Coal	120,635	125,960	126,626	122,623	121,532
Crushed stone, gravel and sand	15,888	17,230	16,993	16,970	17,572
Nonmetallic minerals	10,051	9,438	8,784	9,953	9,219
Grain mill products	11,340	11,188	11,258	11,203	11,357
Food and kindred products	11,685	12,190	12,125	11,628	11,160
Primary forest products	9,963	9,950	10,046	10,522	10,658
Lumber and wood products except furniture	7,828	7,536	8,705	7,841	7,771
Pulp, paper and allied products	11,546	11,738	11,904	11,234	11,690
Chemicals and allied products	25,927	25,996	26,002	25,408	25,971
Petroleum products	5,120	4,810	5,060	4,966	4,882
Stone, clay and glass products	11,100	11,427	11,411	11,665	11,666
Coke	5,245	5,906	6,192	5,502	5,620
Metals and products	9,862	10,599	10,947	9,690	9,882
Motor vehicles and equipment	21,715	21,612	22,019	21,742	21,349
Waste and scrap materials	9,979	9,849	10,079	9,798	10,038
Forwarder and shipper assn. traffic	2,793	2,990	3,254	3,156	3,052
All other carloads	81,386	85,575	86,361	82,847	80,699
LCL traffic	—	—	—	—	—
Total Cars Loaded	**425,708**	**437,959**	**442,880**	**433,327**	**433,976**
% change from previous year	9.4	1.1	2.2	0.1	1.3
Estimated revenue ton-miles (billions)	19.1	19.5	19.6	19.3	19.2
% change from previous year	10.3	6.7	4.5	4.9	8.4

Total:	**1987**	**1986**	**% change**
46 weeks	819.4	778.1	5.3

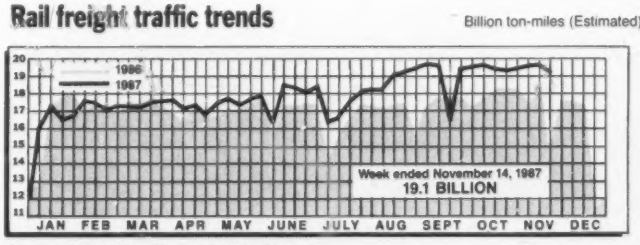
Piggyback loadings

	Nov. 7 week	Oct. 31 week	Oct. 24 week	Oct. 17 week
Trailers/containers	109,182	109,710	106,653	104,744

Cumulative total, 45 weeks		**% change from 1986**
Trailers/containers	4,459,931	2.9

Rail freight traffic trends

Billion ton-miles (Estimated)



Source: Association of American Railroads

Freight cars

	DELIVERED 3rd quarter 1987	DELIVERED 3rd quarter 1986	ORDERED 3rd quarter 1987	ORDERED 3rd quarter 1986	ON ORDER AND UNDELIVERED October 1 1987	ON ORDER AND UNDELIVERED October 1 1986
Built new by carbuilders	3,848	3,567	3,951	2,974	5,535	3,664
Rebuilt	123	0	123	0	0	0
TOTAL	**3,971**	**3,567**	**4,074**	**2,974**	**5,535**	**3,664**
Locomotives (new and rebuilt)	37	137	N/A	N/A	8	35

Source: Transportation Div., AAR and American Railway Car Institute

TRAFFIC TRENDS:

Grain and intermodal loadings lead a robust recovery

By DREW ROBERTSON,
President, Atlantic Systems, Inc.*
for *Railway Age*

Rail traffic in the third quarter sustained the robust pace established earlier this spring. Grain and intermodal traffic continued to record major gains over 1986 levels. Coal and steel industry-related commodities (steel, scrap, ore, and coke) rebounded remarkably from the last winter's doldrums. In fact, almost every rail commodity except autos and paper showed major increases in the third quarter.

Strong growth in rail traffic pushed up the demand for most rail car types as well. Covered hoppers outpaced 1986 levels by over 22% because of traffic gains in grain and chemicals. Surging coal and steel traffic led to a 7% increase in open top hoppers and an 11% rise in gondola loadings. Tank car loadings jumped by almost 15% over 1986 levels while TOFC advanced by almost 10%. Although plain and refrigerated boxcars demonstrated modest growth, equipped boxcars dropped by almost 5% because of weakening paper and auto parts business. Multilevel loadings, growing earlier this year, have flattened. Overall, carloadings increased by almost 8%.

Over a third of the growth enjoyed by the industry in 1987 has come from gains in covered hopper car traffic. In the third quarter, 17% of all U.S. traffic loaded in covered hoppers. Because of growth in grain and chemicals, covered hoppers in 1987 year-to-date have outpaced last year's pace by over 19%. This growth was particularly evident on CSX, UP, ATSF, and MKT, each enjoying at least 20% increases in covered hopper car loadings over 1986. Although CSX, UP, and BN load more covered hopper than other roads, covered hoppers are more important (as a percentage of total loadings) for smaller Western roads, especially Soo, CNW, MKT and ATSF.

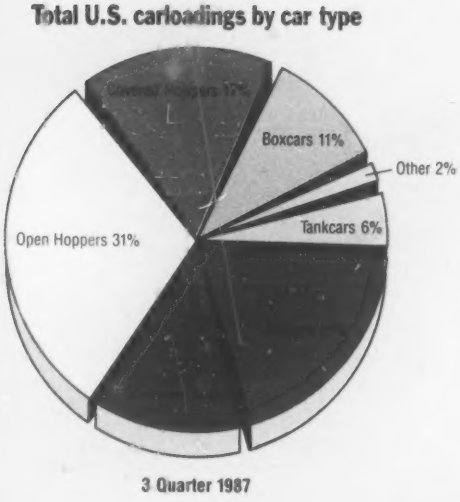
Traditionally, most Western roads originate more covered hoppers than they terminate on-line. Conversely, Eastern roads usually have surpluses. UP, BN, and CNW have had the largest covered hopper car deficits this year, while CR, SP, and NS have had significant surpluses. Since the early part of this year as traffic has built up, deficit or surplus situations on most roads have deteriorated. Recent car shortages will continue for some time.

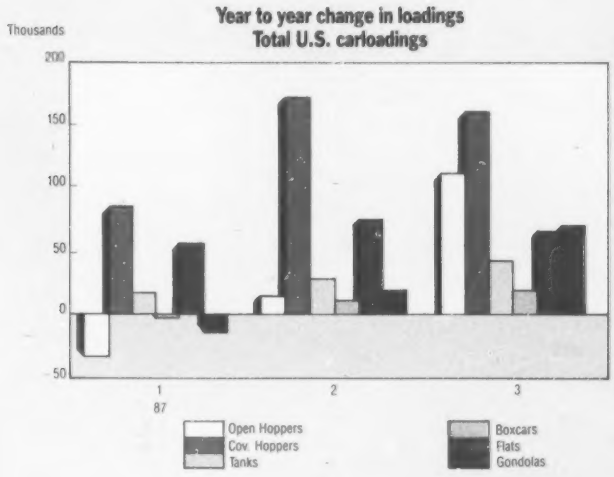
*Atlantic Systems compiles rail commodity data from the AAR's CS54-A Report and car type data from the CS54-1A/1B Reports. The data are available on diskette through ASI's Railshare service. Atlantic Systems is a transportation consulting firm located in New York City.

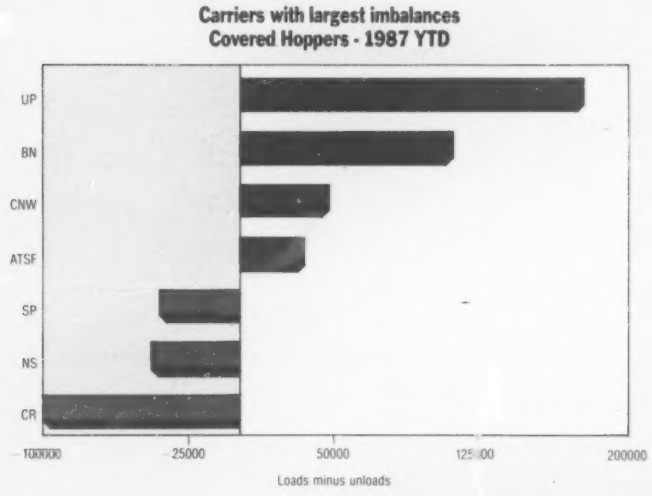
Carloadings by Commodity - Total U.S. Traffic
Third Quarter and YTD

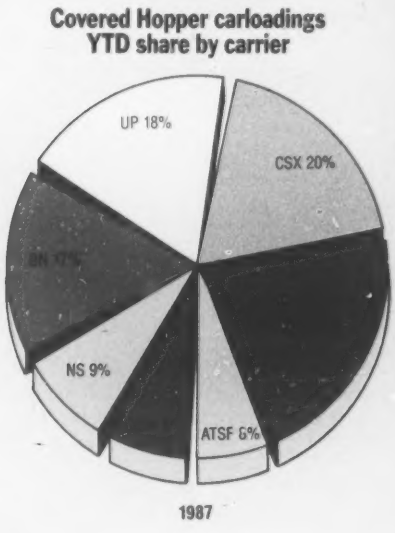
(Thousands)

	Major Commodities								
	Coal	Grain	Steel Ind.	Chemicals	Crushed Stone	Autos	Paper	**Intermodal**	**Total Industry**
3 Q 1987	1471.9	409.1	524.5	333.1	215.6	202.7	160.2	1032.4	5248.2
3 Q 1986	1403.9	325.9	468.0	306.1	189.3	226.9	161.4	937.0	4868.4
Change	68.0	83.2	56.5	27.1	26.3	−24.2	−1.2	95.4	379.8
1987	4485.8	1169.3	1562.2	1070.9	582.4	761.6	518.9	3152.4	16136.4
1986	4514.0	944.6	1496.1	1001.2	542.4	825.5	531.2	2915.9	15514.5
Change	−18.5	222.1	86.4	73.7	44.7	−61.2	−13.4	242.4	669.3









Carloadings by Car Type - Total U.S. Traffic
Third Quarter and 1987 YTD

(Thousands)

	Total Loaded						
	Covered Hoppers	Flats	Gondolas	Hoppers	Tanks	Boxcars	All Other
3 Q 1987	902.3	1080.6	701.4	1633.1	340.0	562.0	100.8
3 Q 1986	741.7	1014.7	632.7	1521.8	296.6	543.6	99.4
Change	160.6	65.9	68.7	111.3	43.4	18.4	1.4
1987	2732.6	3446.2	2119.1	4888.4	1059.9	1867.0	311.5
1986	2291.0	3232.0	2033.6	4761.6	964.4	1836.7	312.9
Change	441.6	214.2	85.5	126.8	95.5	30.3	-1.4

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January 1988

Railway Age

...for the new age of railways and rail transit

Locomotives: A hard look at the options

CSX: Making tracks for growth

Passenger railcars: What's ahead for builders

Brendan McNally
Congressional Info Service CIS
4520 East-West Highway
Bethesda MD 20814-3389
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January 1988

Railway Age

...for the new age of railways and rail transit

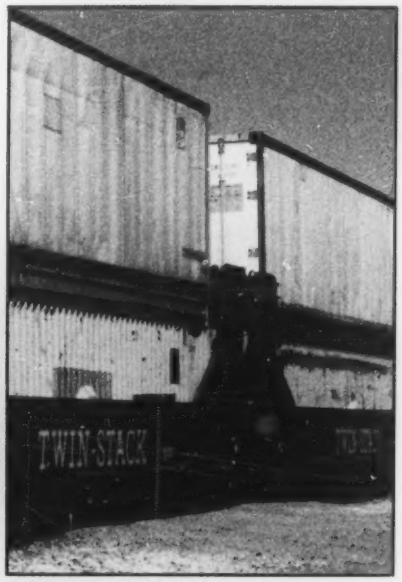
44 Passenger railcars: A fast track for builders

Supplying rolling stock for U. S. and Canadian rail passenger systems has burgeoned into a billion-dollar-a-year business. All signs point to continued growth, according to a *Railway Age* survey.

Features

26 Locomotives: A hard look at the options

Contending that the U.S. motive power fleet "is obsolete and growing more so each day," ex-CMO John G. German offers pointers toward better utilization of existing locomotives and acquisition of new units.



33 CSX: Making tracks for growth

As it slims down to a system of some 15,000 miles, CSX is taking steps to insure that its infrastructure will remain one of America's finest. This year's capital budget for plant is $248 million.

40 What's different about the Iowa Interstate

This is a regional railroad that has no pretensions to being anything else. It's dedicated to serving the interests of its state and shipper investors, and in the process is showing a modest profit.

53 Sugar cane railroad is key to efficiency

This month's "Perspective" takes the form of an illuminating visit to a railroad operation in south central Florida that the United States Sugar Corp. calls "remarkably efficient."

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Market Outlook

Equipment

Conrail: Is increasing the capacity of 300 60-foot auto-parts boxcars by raising their roofs 21 inches. The work is being performed at the Hollidaysburg, Pa., shop at a cost of $6.5 million.

Greater Orlando Aviation Authority: Awarded two contracts to Westinghouse Electric for the supply of ten additional people mover vehicles. One contract calls for delivery of four cars in 1988 for expansion of existing service from the main terminal to two satellite terminals. Under another contract, Westinghouse will supply two three-car trains—plus a double guideway and control and power distribution systems—for service to a third satellite scheduled to go into operation in October 1989. The latter contract includes an option for a third people mover system to serve a new terminal now in the planning stage.

PATH: Took delivery in December of the last of 95 new commuter cars supplied by Kawasaki Rolling Stock (U.S.A.) Inc. in partnership with Nissho Iwai American Corp.

Pullman Leasing Co.: Purchased the entire tank car fleet and a portion of the covered hopper car fleet of Evans Transportation Co. for $58.6 million. The acquisition brought Pullman Leasing's total investment in railcars to almost $750 million. Altogether, Pullman Leasing added nearly 4,000 cars to its fleet in 1987, bringing the total to 29,000 cars.

U.S. Navy, Facilities Engineering Command: Awarded a contract to Chrome Locomotive for the remanufacture of four 80-ton diesel-electric units.

VIA Rail Canada: Awarded a $63-million (Canadian) contract to General Motors of Canada Ltd. for 26 FL4OPH-2 diesel-electric locomotives similar to 30 units acquired earlier from the London, Ont., plant of GM. The order is part of a $361-million capital improvement program for VIA Rail that was approved by the federal government last May. The new locomotives will be used in transcontinental service and in the Quebec City-Windsor, Ont., corridor. VIA Rail President and CEO Denis de Belleval said the order is "another significant step forward in the modernization of Canada's passenger rail system."

Revenue freight carloadings

Commodity	Dec. 19 week	Dec. 12 week	Dec. 5 week	Nov. 28 week	Nov. 21 week
Grain	31,513	31,713	33,258	23,909	31,021
Other farm products	5,303	5,159	4,090	2,943	3,585
Metallic ores	15,814	16,347	17,130	16,153	18,779
Coal	122,750	129,399	123,512	101,461	127,333
Crushed stone, gravel and sand	12,446	14,217	14,369	10,194	15,036
Nonmetallic minerals	9,304	9,343	11,540	6,361	10,469
Grain mill products	10,962	11,480	11,694	9,600	11,247
Food and kindred products	10,947	11,469	11,610	9,121	11,869
Primary forest products	11,141	11,506	10,951	7,176	10,552
Lumber and wood products except furniture	7,724	7,882	7,834	6,007	7,960
Pulp, paper and allied products	11,771	11,710	12,887	11,264	11,415
Chemicals and allied products	26,936	27,746	29,370	21,707	26,554
Petroleum products	4,576	5,175	4,852	3,930	4,810
Stone, clay and glass products	8,959	10,420	10,227	8,177	10,235
Coke	5,715	5,624	6,080	5,251	5,573
Metals and products	9,837	9,888	10,426	8,904	9,746
Motor vehicles and equipment	19,798	21,620	21,571	14,172	21,107
Waste and scrap materials	9,250	9,992	90,875	7,384	10,223
Forwarder and shipper assn. traffic	2,472	2,584	2,567	2,185	2,400
All other carloads	81,830	82,133	80,954	65,927	83,850
LCL traffic	—	—	—	—	—
Total Cars Loaded	**419,848**	**435,407**	**434,797**	**341,846**	**433,764**
% change from previous year	(6.8)	9.8	10.3	9.5	5.6
Estimated revenue ton-miles (billions)	18.8	19.6	19.7	15.5	19.4
% change from previous year	7.9	10.9	11.3	10.3	5.5

Total:	1987	1986	% change
51 weeks	928.0	863.4	7.5

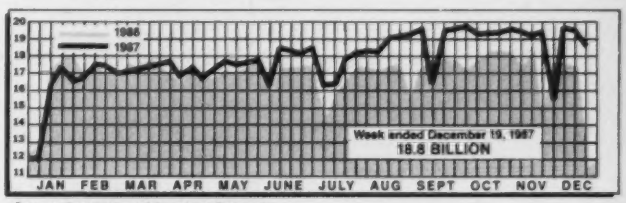
Piggyback loadings

	Dec. 12 week	Dec. 5 week	Nov. 28 week	Nov. 21 week
Trailers/containers	106,808	103,532	84,608	107,649

Cumulative total, 50 weeks		% change from 1986
Trailers/containers	4,966,142	2.8

Rail freight traffic trends

Billion ton-miles (Estimated)

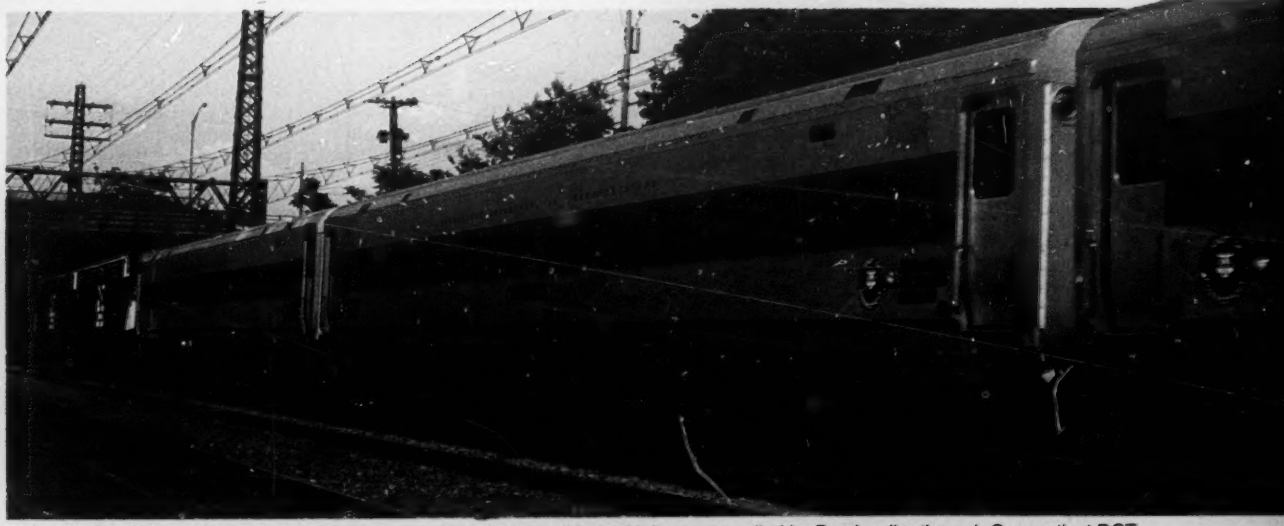


Source: Association of American Railroads

Facilities

Metro-North Commuter Railroad: Awarded a contract to De Leuw, Cather & Co. to provide design and shop drawing review of a new m/w equipment repair facility at North White Plains Yard. The new facility will replace an 80-year-old wooden and masonry structure. All track maintenance equipment used on the Hudson, Harlem and New Haven lines is maintained and repaired at North White Plains, as is work train equipment.

New Orleans Regional Transit Authority: Awarded a $3.2-million contract to Parsons Brinckerhoff Quade & Douglas to serve as construction managers for the $44-million renovation of the St. Charles streetcar line.



Metro-North will be in the market for 60 commuter cars similar to these which were supplied by Bombardier through Connecticut DOT.

Passenger cars: A fast track for builders

A continuing strong market for passenger railcars reflects the continuing comeback of train travel within and between cities. The big prize coming up: New York's $2-billion ac-car fleet.

By LUTHER S. MILLER,
Editor

A *Railway Age* survey reveals that passenger-train operators in the U.S. and Canada spent more than $1 billion last year for new railcars, about twice the amount that railroads and other buyers spent for new freight rolling stock. That's a dramatic reversal of the pattern of just a couple of decades ago, when the freight car was king of the marketplace and so few passenger railcars were being bought that the American Railway Car Institute stopped counting them.

The tables and charts on the facing page summarize the results of our latest survey, which included all rail passenger agencies in the U.S. and Canada—those providing intercity, commuter, rapid transit, and light rail service.

The figures are impressive, reflecting the continuing renaissance of a mode of passenger transportation that not long ago appeared doomed to museum status: 1,040 new cars delivered in 1987, at a cost of around $1 million apiece, and a backlog of 946 new cars on order and undelivered as of Jan. 1, 1988. Orders are already in sight for more than 360 additional cars in 1988 and for up to 1,650 more in the following five years.

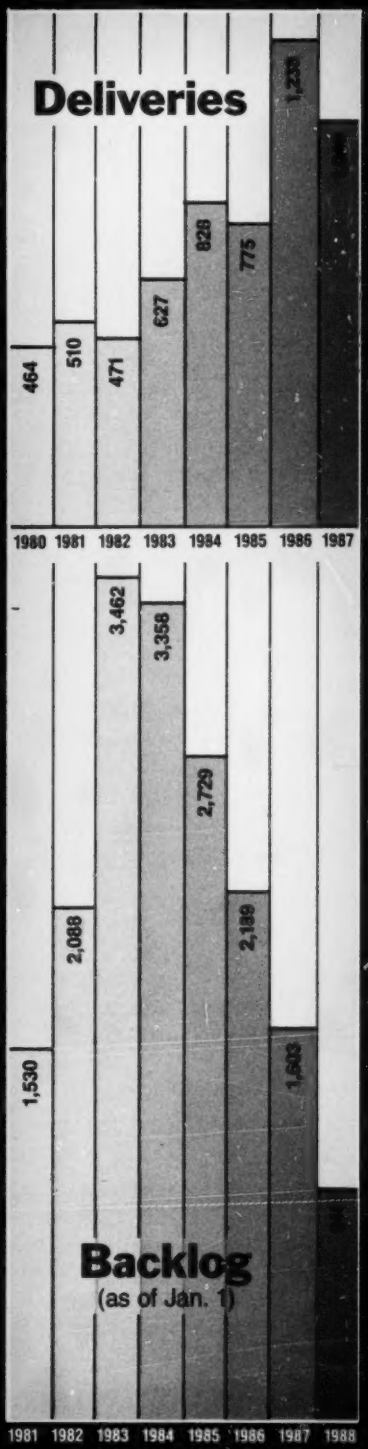
And these projections are conservative. They do not include, for example, "substantial" orders for new Viewliner cars that Amtrak hopes to place starting in 1990. Amtrak is reluctant to estimate the size of its new fleet because funding problems must still be resolved, although President W. Graham Claytor, Jr., has indicated that orders will probably be placed in batches of 30 to 50 (*RA*, Dec. 1987, p. 30). Other potential purchases, too "iffy" right now to enter the official projections, could also be showing up on the order books: trainsets for several high-speed intercity corridors that are under study, intercity cars for 401-b services that some states want to initiate in cooperation with Amtrak, and cars for numerous light rail systems that are in the early planning stages in such cities as Minneapolis, Denver, and Norfolk, Va.

Privately built and operated high speed intercity systems hold out the prospect of a particularly rich market. There is some skepticism among transportation people that developers will be able to raise the necessary billions of dollars in the private money markets. But two of the world's biggest passenger-car builders, Bombardier of Canada and Alsthom of France, have sufficient faith in U.S. high speed prospects that they have entered into a joint venture to bring a French TGV system to North America for testing. U.S. TGV President Robert W. Blanchette said the joint venture agreement "will bring significant benefits to our efforts in Florida and other corridors around the U.S." (The State of Florida proposes to award a franchise to a private developer to build a high speed line connecting Miami, Orlando, and Tampa.) Alsthom has supplied the French National Railways with 104 TGV trains for 168-mph service on the Paris-Lyon-Southeast France line and is building 95 trains for 185-mph service on the TGV Atlantique line, which is scheduled to open in 1989.

Amtrak told *Railway Age* late in December that it was involved in "conversations" about the possible testing of the TGV in the Northeast Corridor. Amtrak had firmer plans for testing some other European equipment: On Dec. 21, Amtrak announced that in the spring of 1988 it would begin testing Talgo tilt-body cars in the Boston-New York corridor. The cars will be supplied by Renfe-Talgo, a Madrid-based joint venture of Spanish National Railways and the manufacturer.

● **The rehab market.** A burgeoning rehabilitation market further brightens the picture. New Jersey Transit Rail Operations (NJTRO) will be seeking bids this spring for rehabilitation of its fleet of 230 12-year-old Arrow III cars, at an estimated cost of

Passenger-car market at a glance



These cars were delivered in 1987:

Purchaser	No. of cars	Type	Builder
Amtrak	2	Intercity prototypes	Budd, Amtrak
Atlanta	36	Rapid transit	Hitachi, C. Itoh
Baltimore (MARC)	13	Commuter	Nippon Sharyo, Sumitomo
Boston	40	Commuter	Bombardier
	34	Commuter	Messerschmitt-Bolkow-Blohm
	9	Light rail	Kinki Sharyo
	6	Rapid transit	UTDC, Inc.
Chicago (CTA)	36	Rapid transit	Transit America
NJ Transit Rail Operations	27	Commuter	Bombardier
New York (Metro-North)	54	Commuter	Mitsui, Tokyu Car
	28	Commuter	Bombardier
New York (NYCTA)	335	Rapid transit	Bombardier
	184	Rapid transit	Westinghouse/Amrail
PATH (PA of NY/NJ)	69	Rapid transit	Nissho Iwai, Kawasaki
Philadelphia (SEPTA)	35	Rapid transit	Bombardier
Pittsburgh (PAT)	1	Light rail	Siemens-Duewag
Sacramento	9	Light rail	Siemens-Duewag
San Francisco (BART)	5	Rapid transit	Soferval
San Francisco (CALTRANS)	2	Commuter	Nippon Sharyo, Sumitomo
Santa Clara County	32	Light rail	UTDC, Inc.
Toronto (TTC)	26	Rapid transit	UTDC Group
	5	Light rail	UTDC Group
Washington (WMATA)	52	Rapid transit	Breda
Total	**1,040**		

Work goes forward on this undelivered backlog:

Purchaser	No. of cars	Type	Builder
Alaska Railroad	8	Intercity	Daewoo
Amtrak	1	Intercity prototype	Budd, Amtrak
Boston	33	Commuter	Messerschmitt-Bolkow-Blohm
	41	Light rail	Kinki Sharyo
	52	Rapid transit	UTDC, Inc.
Los Angeles (LACTC)	54	Light rail	Nippon Sharyo
NJ Transit Rail Operations	13	Commuter	Bombardier
New York (NYCTA)	100	Rapid transit	Westinghouse/Amrail
	200	Rapid transit	Kawasaki
Philadelphia (SEPTA)	26	Light rail	Asea Traction-Amtrak
San Diego (MTDB)	20	Light rail	Siemens-Duewag
San Francisco (BART)	145	Rapid transit	Soferval
Santa Clara County	18	Light rail	UTDC, Inc.
Toronto (GO Transit)	63	Commuter	UTDC, Inc.
Toronto (TTC)	46	Light rail	UTDC Group
	94	Rapid transit	UTDC Group
Washington (WMATA)	32	Rapid transit	Breda
Total	**946**		

Orders likely to develop in 1988:

Purchaser	No. of cars	Type
Baltimore	35-40	Light rail
Boston	95-115	Commuter
Dallas (DART)	12	Light rail
Los Angeles (SCRTD)	30	Rapid transit
Montreal	24	Commuter
NJ Transit Rail Operations	40	Commuter
New York (LIRR)	12	Commuter
New York (NYCTA)	44	Rapid transit
Sacramento	6	Light rail
Toronto (GO Transit)	60	Commuter
Total	**363-378**	

The five year (1989-1993) outlook:

Purchaser	No. of cars	Type
Baltimore	40	Light rail
Baltimore (MARC)	30	Commuter
Boston	100	Rapid Transit
Buffalo (NFTA)	6	Lightrail
Calgary	14	Light rail
Chicago (CTA)	280-356	Rapid transit
Chicago (METRA)	116	Commuter
Dallas (DART)	12	Light rail
Los Angeles (LACTC)	30	Light rail
Los Angeles (SCRTD)	34-42	Rapid transit
NJ Transit Rail Operations	90-110	Commuter
New York (LIRR)	46	Commuter
New York (Metro-North)	60	Commuter
New York (NYCTA)	400*	Rapid transit
PATH (PA of NY/NJ)	29	Rapid transit
Portland (Tri-Met)	5-10	Light rail
Sacramento	12-25	Light rail
San Diego (MTDB)	15-20	Light rail
San Francisco (CALTRANS)	13	Commuter
San Francisco (MUNI)	24	Light rail
St. Louis	31	Light rail
Toronto (GO Transit)	42-60	Commuter
Toronto (TTC)	22-58	Rapid transit
Vancouver (BC Transit)	10-20	Light rail
Total	**1461-1652**	

* Annual 200 car procurements beginning in 1992.

New York Rail Car is rebuilding 248 rapid transit cars for PATH at a cost of $450,000 each, four times their original cost.

$110 million. The New York City Transit Authority's continuing rebuild program, costing around $375,000 a car, will see 200 R-32s and more than 100 R-46s go out for bid. The Chicago Transit Authority is expected to award a contract for modernization of 144 2200-series Budd cars. The Connecticut DOT has 13 Budd SPV-2000 self-propelled cars on its immediate rebuild roster.

Meanwhile, work continues on substantial rebuild orders already placed. New York Rail Car is winding up one of the biggest and costliest—the rehabilitation of 248 PATH (Port Authority Trans-Hudson Corp.) rapid transit cars at $450,000 each, around four times their original cost. The Southeastern Pennsylvania Transportation Authority (SEPTA) is rebuilding 310 Silverliners. Sumirail Corp. is rebuilding 200 NYCTA cars.

• **Ac: The wave of the future.** The big news on the technological front is the mounting interest on the part of passenger-train operators in switching from dc to ac power, thus eliminating the brushes and commutators that now account for about two-thirds of all traction motor maintenance and failure costs. The technology has been developed and refined in Europe and Asia, where about 500 ac traction cars are operating. Now the U.S. is climbing on the bandwagon.

There were several major ac developments in 1987. New York's Metro-North Commuter Railroad awarded a $43-million contract to BBC Brown Boveri (now part of Asea Brown Boveri) to rebuild ten FL-9 dual-mode (diesel and electric) locomotives and convert them to ac traction. Amtrak put together its own ac locomotive at Beech Grove, Ind., from the shell of a wreck-damaged F40, using Brown Boveri equipment, and then persuaded the Electro-Motive Division of General Motors to install Siemens ac traction equipment on two of the 11 new FL40s EMD is building for the railroad. Amtrak will test the Asea Brown Boveri and Siemens systems against each other, and Amtrak President Claytor anticipates that the next major locomotive acquisition—probably in the early 1990s—will call for ac traction.

Meanwhile, NJTRO said it would specify ac—at a total cost of around $20 million—for 130 of the Arrow III cars that will be modernized (the other 100 cars in the Arrow III fleet operate as part of married pairs). SEPTA awarded a $44-million contract to an Asea Traction-Amtrak consortium to supply 26 ac-equipped cars for the 13.7-mile Norristown line, which is now being rehabilitated. And late in 1987 the New York City Transit Authority put into motion a plan which it hopes will culiminate in delivery of a 1,500-car fleet of ac cars during the decade of the '90s.

• **A $2-billion sweepstakes.** For two and a half years, NYCTA has been testing two subway cars equipped with the Garrett/Stromberg ac propulsion system. Engineers have carefully monitored performance data—acceleration, deceleration, speed signal compatability, power regeneration.

The results so far have been impressive—so impressive that NYCTA has invited carbuilders and suppliers around the world to participate in constructing up to four prototype ac trains that will be competitively tested for a year. NYCTA told the builders and suppliers that they would be expected to share the $20-million per train cost, and emphasized that "only companies that enter the competition and pass the testing period will be permitted to bid on future car orders."

The prize for the winner—or winners—will be production orders for around $2 billion worth of cars beginning in 1990 and continuing at the rate of 200 cars a year. First deliveries are to be made in 1994.

"The TA would like to incorporate advanced technology, which offers high potential for increased fleet reliability and reduced operating and maintenance costs, in future subway car purchases," said NYCTA President David L. Gunn. "However, before these cars can be purchased they will be required to undergo a rigid pilot test and qualification effort to prove that each technical innovation functions in the New York City subway environment."

Gunn said one major goal will be to reduce the truck weight by 10-20%. Gunn also wants wider seats, brighter lights, staggered doors to facilitate entering and exiting, high-tech door controls equipped with "no-motion detectors" to prevent unexpected opening, public-address systems that make automatic announcements, passenger-to-crew intercoms, electronic destination signs, and cabs that can be converted so that they may be operated by a single operator.

NYCTA engineers expect the switch to ac traction to save around $8,500 per year per car—$5,000 in reduced maintenance and $3,500 in reduced consumption of electricity, since the new cars will require about 30% less energy to run than current models.

• **The city-by-city picture.** While carbuilders will continue to find their biggest single chunk of business in New York, which accounts for 10% of the world market in subway equipment, business prospects are also bright elsewhere.

Some projections:

Baltimore—The Mass Transit Administration of Maryland is looking at the Baltimore & Annapolis as a light rail route and hopes to order 35 to 40 LRVs in 1988 or soon thereafter. Maryland also expects to purchase 30 new cars for MARC commuter service.

Boston—The Massachusetts Bay Transportation Authority plans to order 50 to 70 double-deck commuter coaches and 45 single level coaches in 1988; the five-year outlook calls for acquisition of 100 rapid transit cars.

Chicago—Metra commuter railroads have a five-year plan for acquiring 116 additional bi-level coaches—102 trailers and 14 cab cars. Chicago Transit Authority plans to buy 280 to 356 new rapid transit cars over the next five years.

Dallas—Dallas Area Rapid Transit will need 210 light rail cars for its 92-mile system. DART hopes to order an initial 12 cars

in 1988 (for delivery in 1993), with incremental orders to follow in 1993, 1994, and 1996.

Los Angeles—The Southern California Rapid Transit District anticipates placing an order in 1988 for 30 rapid transit cars, to be followed by orders for up to 42 additional cars. The Los Angeles County Transportation Commission, which already has 54 LRVs on order from Nippon-Sharyo, will need 30 more in the near future.

Montreal—The Montreal Community Metro System plans to place an order this year for 24 commuter cars.

New York—Metro-North's five-year plan calls for up to 60 new M-4 electric commuter cars; the Long Island will be getting up to 46 new M-3s.

New Jersey—New Jersey Transit Rail Operations, which has 13 push-pull coaches on order from Bombardier, will order an additional 40 in 1988; the five-year plan calls for 40 to 50 standard coaches and 50 to 60 bi-levels.

Portland—Tri-Met sees a need for 5 to 10 new light rail cars.

St. Louis—The East-West Gateway Coordinating Council, which hopes to start building its Metro Link light rail system in about a year, estimates it will need 31 cars.

Sacramento—The Sacramento Regional Transit District, which started service last year with nine Siemens-Duewag LRVs, expects to order six more this year and 12 to 25 over the next five years.

San Diego—The Metropolitan Transit Development Board has 20 LRVs on order from Siemens-Duewag and will need an additional 15 to 20 as its trolley system continues to expand.

San Jose—The Santa Clara County Transportation Agency, which began revenue service last month with 50 articulated LRVs supplied by UTDC, expects to purchase 20 more similar cars.

San Francisco—Caltrans will be in the market for up to 13 gallery cars of the type delivered last year by Sumitomo-Nippon Sharyo. The San Francisco Municipal Railway has a five-year plan for acquisition of 24 LRVs.

Toronto—GO Transit, which has 63 bi-levels on order from the Can-Car plant of UTDC, will order 60 more cars of the same type this year and 42 to 60 more over the next five years. The Toronto Transit Commission, which has 94 rapid transit cars and 46 LRVs on order from UTDC, expects to buy 22 to 58 additional rapid transit cars over the next five years.

Vancouver—BC Transit has long-range plans for an additional 10 to 20 light rail cars. ■

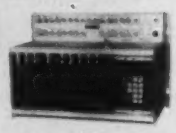
Products Report

Drop-end dump car

DIFCO, Inc. is offering the "Ditcher Train," a modified side dump car incorporating a drop-end design. The design permits an excavator to drive through a train of these cars, clean ditches, and close the end doors as the cars are filled. More productive track time is said to be achieved by requiring fewer trips to the dump site.

Write in 970 on Reader Service Card

Crossing predictor signal



Safetran's Model 3000 Micro Grade Crossing Predictor is a microprocessor-controlled system that provides a constant warning time at crossings regardless of the speed of the approaching train, a system that is capable of handling double-track operations with installation of a single unit. The Model 3000 has a removable command module that allows programming and updating to be done on-site. The basic system includes a single transceiver and island module; the unit can operate two undirectional or two bidirectional approaches by adding a second identical transceiver module. One or two DAX prediction modules can be added to provide up to four independent auxiliary prediction times; in addition, an optional recorder module is available for remote diagnostics and additional train move and crossing operation data.

Write in 971 on Reader Service Card

Wear-resistant coating

CEMKOTE, a nickel-cobalt-boron metal finish, is designed for use where base metal material is exposed to wear due to abrasion, adhesion, surface fatigue, erosion, fretting and corrosion. According to Cemkote Inc., a division of McComas Industries, Inc., it has a hardness rating of 850 Knoop as plated or 1240 Knoop heat-treated. For adhesion, the finish has been tested at up to 380,000 psi on steel; wear tests show it as providing up to 30 times the life of an unplated component and up to 15 times the life of hard chrome; its coefficient of friction is rated at .008 static as plated.

Write in 972 on Reader Service Card

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*Both models were developed for XTRA, Inc.

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4/1/88 C8400-1

February 1988

Railway Age

...for the new age of railways and rail transit

For FEC, train control that's automatic

Light Rail Planner's Guide

CSX consolidates signal equipment repairs

February 1988

Railway Age

...for the new age of railways and rail transit

Features

LIGHT RAIL PLANNER'S GUIDE

Transit's viable alternative LR3

How planners can profit from the experience of cities that have already taken the light rail route is the subject of a probing essay by William D. Middleton.

Who's who in light rail transit LR14

A directory of consultants, suppliers, and other companies that stand ready to help planners bring light rail from concept to reality.

28 FEC moves toward system-wide ATC

Florida East Coast's freight-only Jacksonville-Miami line will be equipped with an automatic train control system being devised by FEC and its equipment supplier, Harmon.

31 Locomotives: The rebuild option

Rebuilt motive power—including a large number of switchers originally built at Erie—is coming out of GE's Cleveland shop in "good as original" condition.

39 Rail lubrication: What comes next?

As railroads race to reap the fuel-saving benefits of locomotive wheel-flange lubrication, some questions remain unanswered. What, for example, is the optimum grease?

44 For CSX, a signal achievement

Workers who are operating it had a strong voice in the planning of CSX's centralized signal-repair shop at Savannah. High productivity and high quality are two results.

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Market Outlook

Equipment

Bombardier: Will become the majority shareholder in the Belgian company, Constructions Ferroviaires et Metalliques BN, with acquisition of the 30% interest currently held by the Societe General de Belgique. Bombardier acquired 45% of BN's capital stock in 1986. BN is a leading European manufacturer of rolling stock.

Trailer Train: Ordered 500 Impack intermodal platforms from Bethlehem Steel's Freight Car Division for delivery in this year's second quarter. Delivery of an earlier order for 500 Impack platforms will be completed by Bethlehem in the first quarter. The Impack is a patented design of Itel Rail Corp. The platforms are joined in five-unit segments to haul trailers ranging in length from 28 to 48 feet.

Facilities

PATH: Awarded a $6.7-million contract to the Bellezza Co., Inc., South Kearny, N.J., for construction of a new electrical substation in Jersey City. In a separate project, PATH will purchase two ventilation fan units for the Exchange Place station in Jersey City from TLT-Babcock, Inc., of Akron, Ohio, for $1,050,000.

Los Angeles County Transportation Commission: Awarded a $3.6-million contract to Harris Corp. for a supervisory control and data acquisition system for the 21.2-mile light rail line LACTC is building between downtown Los Angeles and Long Beach. The M9200 system will incorporate two Harris H800 computers and include four dual-monitor workstations, three single-monitor workstations, a rear projection statusboard, and 24 remote terminal units. Advanced software applications will include data base management, network communications, man-machine interface, report generation, train tracking and identification, and gate monitoring.

New York City Transit Authority: Awarded a $177-million contract to Perini/Tutor-Saliba/Buckley, a joint venture, for rehabilitation of the Lexington-4th Avenue line between Borough Hall station, Brooklyn, and 161st Street station in the Bronx. Work is to begin immediately and is to be completed by June 1991.

Revenue freight carloadings

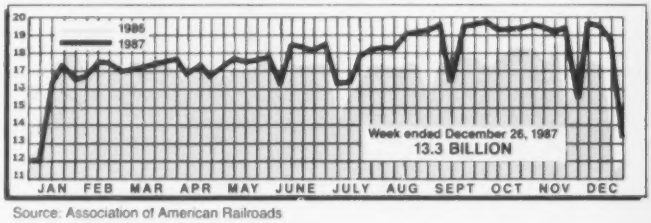
Commodity	1987 52 weeks	1986 52 weeks	% change
Grain	1,505,206	1,268,347	18.7
Other farm products	203,375	192,667	5.6
Metallic ores	846,153	797,839	6.1
Coal	5,810,862	5,725,272	1.5
Crushed stone, gravel and sand	745,962	678,154	10.0
Nonmetallic minerals	489,677	475,503	3.0
Grain mill products	565,386	546,314	3.5
Food and kindred products	567,210	562,984	0.8
Primary forest products	543,681	535,041	1.6
Lumber and wood products except furniture	418,740	396,990	5.5
Pulp, paper and allied products	646,724	654,785	(1.2)
Chemicals and allied products	1,369,714	1,273,042	7.6
Petroleum products	249,500	240,649	3.7
Stone, clay and glass products	539,234	510,415	5.6
Coke	260,174	218,357	19.2
Metals and products	472,378	414,616	13.9
Motor vehicles and equipment	980,383	1,037,611	(5.8)
Waste and scrap materials	451,843	412,775	9.5
Forwarder and shipper assn. traffic	142,842	197,853	(38.5)
All other carloads	3,997,665	3,627,914	10.2
LCL traffic	4,849	6,023	(24.2)
Total Cars Loaded	**20,811,558**	**19,783,151**	
% change from previous year	5.2	1.9	
Estimated revenue ton-miles (billions)	941.3	874.5	
% change from previous year	7.6	(0.3)	

Piggyback loadings

	1987 52 weeks	1986 52 weeks	1985 52 weeks
Trailers/containers	5,155,737	5,006,157	4,590,952
% change from previous year	3.0	9.0	0.6

Rail freight traffic trends

Billion ton-miles (Estimated)



Source: Association of American Railroads

Freight cars

	DELIVERED 4th quarter 1987	DELIVERED 4th quarter 1986	ORDERED 4th quarter 1987	ORDERED 4th quarter 1986	ON ORDER AND UNDELIVERED January 1 1988	ON ORDER AND UNDELIVERED January 1 1987
Built new by carbuilders	3,552	3,972	5,077	2,985	6,736	2,677
Rebuilt	27	20	27	20	0	0
TOTAL	**3,579**	**3,992**	**5,104**	**3,005**	**6,736**	**2,677**
Locomotives (new and rebuilt)	75	56	N/A	N/A	35	3

Source: Transportation Div., AAR and American Railway Car Institute

3/25/88 C8400-1

March 1988

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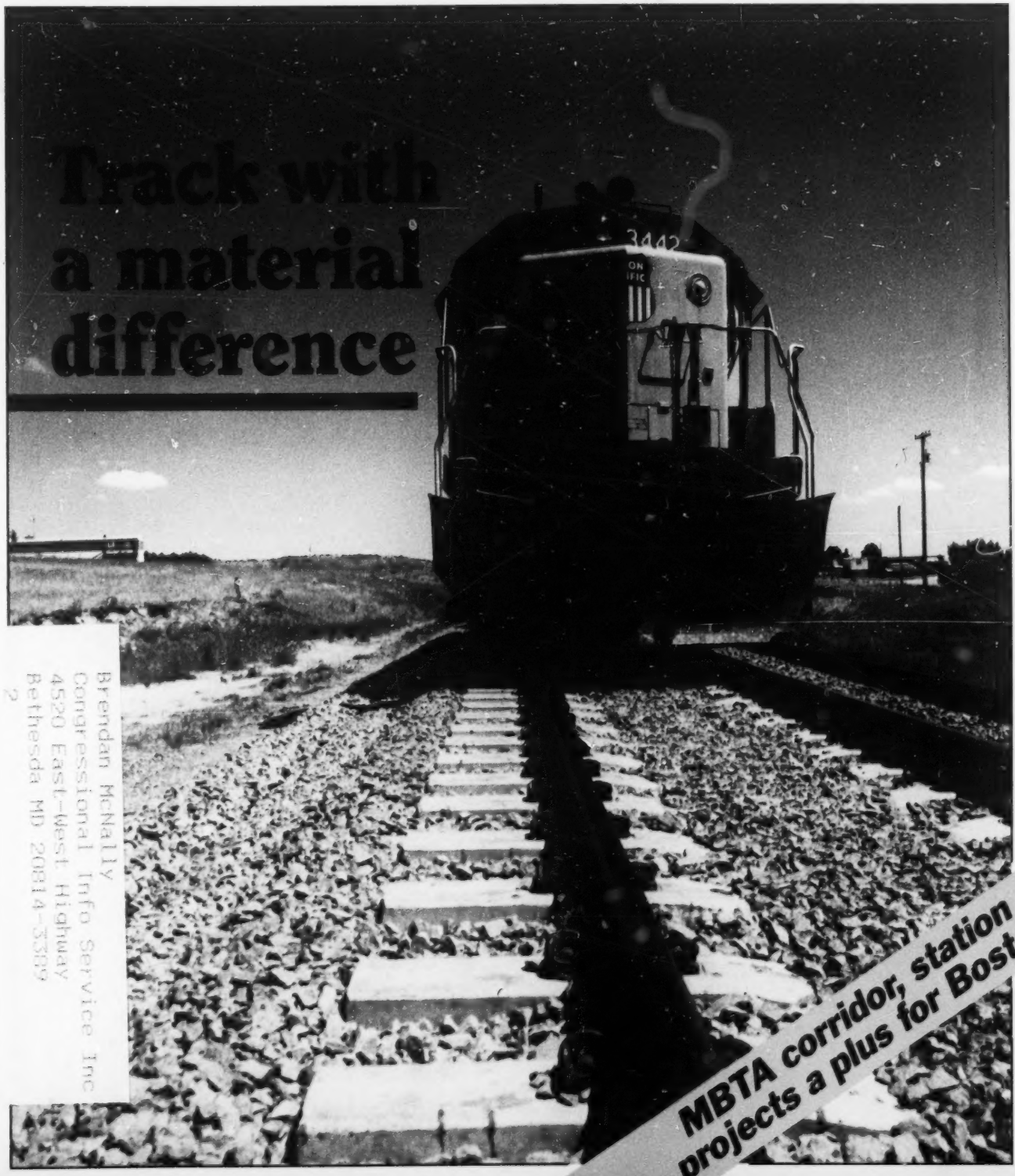
...for the new age of railways and rail transit



MBTA corridor, station projects a plus for Boston

Brendan McNally
Congressional Info Service Inc
4520 East-West Highway
Bethesda MD 20814-3389
2

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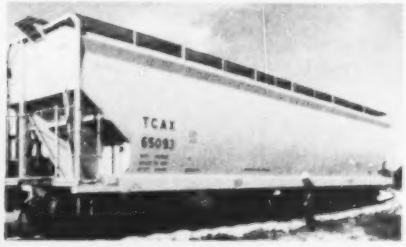
Features



49 For carbuilders, a mini-boom

The question is no longer whether there will be an upturn in freight-car orders, but how big it will be. Car surpluses are shrinking and there are spot shortages.

67 Bostom: MBTA builds for growth

The burden of double-digit ridership increases will be eased by completion of the Southwest Corridor Project and a new multi-modal transportation center.

29 Track with a material difference

The options for engineering departments are multiplying. Concrete ties are slowly winning acceptance as reconstituted ties and super-hardwood ties come on the scene.

56 How UP will control 21,000 miles from Omaha

Technology that has been successfully tested at Portland, Ore., will permit Union Pacific to merge nine dispatching centers into one in its headquarters city.

37 A Railroader's Guide to Washington

The 1988 edition of the Railway Age/Unit directory is a comprehensive name-rank-and phone-number guide to Washington officials of particular importance to railroads.

61 Advanced ATC coming to NEC

Some fast technological footwork has cleared the way for implementation of FRA's order putting freight operations in the Corridor under automatic train control.

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Market Outlook

Equipment

Morrison-Knudsen: Awarded a contract to Wellman Thermal Systems Corp. to furnish aluminized steel strip heaters and related hardware for a project involving the refurbishing of 275 R-42 cars for the New York City Transit Authority.

NJ Transit Rail Operations: Awarded a $9.5-million (U.S.) contract to Bombardier for 12 additional commuter cars. Bombardier has already delivered 150 Comet II commuter cars to New Jersey, and recently refurbished 147 Comet I cars built by Pullman Standard in the early 1970s.

Occidental Chemical Corp.: Leased 105 6,150-cubic-foot-capacity covered hopper cars from Pullman Leasing. The cars, equipped with circular hatches, are designed for plastics service.

Union Pacific: Ordered 100 new diesel-electric units at a cost of $116 million. General Electric will supply 75 Dash 8-40-C units and the Electro-Motive Division of General Motors 25 SD-60s.

Westinghouse Electric: Has entered into a preliminary agreement with AEG, a West German company owned by Daimler Benz, under which the two companies plan to combine their transportation businesses in a new global joint venture company. Both Westinghouse and AEG make propulsion equipment and people mover systems. The joint venture will be named AEG-Westinghouse Transportation Systems (AWTS) and "will combine the worldwide transportation design, manufacturing, sales and service activities of the two companies."

Facilities

Miami Beach City Commission: Awarded a contract to the Tampa office of Parsons Brinckerhoff Quade & Douglas for a study of rail options to connect Miami Beach with downtown Miami and the Miami Metrorail/Metromover systems. A light rail line connecting the Miami Beach Convention Center with the Miami hotel district has been under consideration.

New York City Transit Authority: Will begin tests this month of automatic fare collection equipment supplied by Cubic Western Data of San Diego, Calif., and CGA of France. For the tests, new stainless steel turnstiles that accept both tokens and magnetically coded cards have been installed at 71 token booth areas in selected subway stations. The system being tested by NYCTA is a "swipe reader" system, similar to that used in Boston. The pilot project is being conducted at a cost of $9 million. NYCTA will evaluate the equipment for reliability, ease of maintenance, marketability, and passenger acceptance. If NYCTA decides to install AFC equipment systemwide, the cost could be in the neighborhood of $100 million (*RA*, April 1987, p. 56).

New York MTA: Awarded a two-year contract to Transportation and Distribution Associates (TAD) for providing independent engineering services. TAD has provided similar services to MTA for the last three years. MTA is obligated by its bondholders to retain an independent engineer.

Revenue freight carloadings

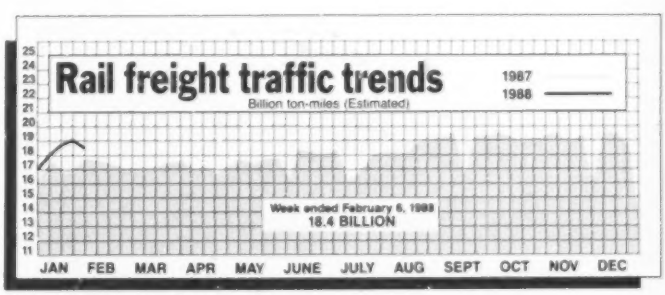
Commodity	Feb. 6 week	Jan. 30 week	Jan. 23 week	Jan. 16 week	Jan. 9 week	Jan. 2 week
Grain	33,466	34,194	32,934	33,525	28,435	24,966
Other farm products	4,097	5,002	4,881	5,008	4,715	4,248
Metallic ores	12,297	11,194	10,610	13,066	12,936	11,976
Coal	113,546	119,438	123,710	116,378	107,774	83,495
Crushed stone, gravel and sand	11,355	11,263	11,816	10,060	8,777	7,756
Nonmetallic minerals	9,916	10,018	9,832	10,311	11,644	7,347
Grain mill products	10,724	11,189	10,904	11,497	11,419	9,470
Food and kindred products	11,308	11,615	11,691	11,642	10,742	7,968
Primary forest products	10,375	10,859	10,444	10,289	9,523	7,322
Lumber and wood products except furniture	7,562	8,739	7,887	7,097	6,895	5,688
Pulp, paper and allied products	12,487	12,427	12,636	11,949	13,024	12,392
Chemicals and allied products	27,393	28,472	27,914	27,506	27,405	23,947
Petroleum products	4,830	5,116	4,907	5,265	5,070	4,052
Stone, clay and glass products	9,268	9,319	9,121	8,580	8,061	7,147
Coke	5,769	5,350	5,537	5,766	5,953	5,486
Metals and products	10,647	11,604	10,874	10,591	10,161	9,390
Motor vehicles and equipment	19,438	20,024	20,040	19,428	15,373	6,774
Waste and scrap materials	9,349	9,078	9,572	9,064	7,588	5,062
Forwarder and shipper assn. traffic	2,562	2,740	2,683	2,489	1,841	1,540
All other carloads	80,968	79,652	78,615	78,133	68,310	54,818
LCL traffic	—	—	—	—	—	—
Total Cars Loaded	**407,357**	**417,293**	**416,608**	**407,544**	**375,646**	**300,844**
% change from previous year	1.9	11.5	11.9	3.2	2.4	12.6
Estimated revenue ton-miles (billions)	18.4	19.1	18.8	18.2	17.1	14.2
% change from previous year	2.5	11.3	11.7	3.4	3.4	12.8

Total:	**1988**	**1987**	**% change**
5 weeks	91.5	86.0	6.4

Piggyback loadings

	Jan. 30 week	Jan. 23 week	Jan. 16 week	Jan. 9 week	Jan. 2 week
Trailers/containers	104,393	101,156	99,908	90,073	72,458

Cumulative total, 4 weeks		**% change from 1987**
Trailers/containers	395,530	5.9


Rail freight traffic trends
Billion ton-miles (Estimated)
1987
1988
Week ended February 6, 1988
18.4 BILLION
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

Source: Association of American Railroads

ARCI expects more than 38,000 new cars to be delivered in 1988-89, and one out of five will be covered hoppers, like this one offered by Thrall.

For carbuilders, a mini-boom

As rising demands are placed on an aging and shrinking fleet, the freight-car market is coming alive. Carbuilders are more than equal to the challenge. Component supply may be another story.

By GUS WELTY, Senior Editor

Cautiously, ever so cautiously, U.S. manufacturers of freight cars and producers of freight-car components are looking for better times.

They are not looking for a 95,000-car year (1979). But they are forecasting something better than the recent 12,000-car years (1984-86), and they are certainly expecting a boom compared with the nadir year of 5,700 cars (1983).

Forecasts by members of the American Railway Car Institute see gradual growth through this year and next, with deliveries of more than 21,000 new cars in 1989 and orders for more than 24,000 cars.

One supplier of major car components may express the view of a lot of people in the business: "I have the feeling that when the market breaks loose, it's really going to break loose. But we've been burned so badly in the past that I'm almost afraid to say things like that out loud."

A carbuilder has thoughts that consider a market break in a different way. Freight-car

Union Tank and other suppliers look for tank-car deliveries totaling over 11,500 in 1988-89.

Freight car deliveries: ARCI forecast

Car type	1988	1989
Box	313	569
Covered hopper	3,622	4,222
Flat, non-articulated	1,143	1,464
Flat, articulated	4,000	4,221
Gondola, except rotary	143	625
Gondola, rotary	798	1,364
Open-top hopper	1,350	2,042
Refrigerator	0	0
Tank	5,736	5,736
Other	138	229
Total	**17,306**	**21,036**

Source: ARCI, averages of individual-member forecasts

Freight car deliveries: The trend

1978	67,440
1979	95,650
1980	85,465
1981	44,825
1982	17,236
1983	5,772
1984	12,396
1985	12,080
1986	12,521
1987	13,186
1988	17,300*
1989	21,000*

*ARCI forecast

The freight car surplus: Going, going . . .

	1987	1986	1982
Covered hopper cars			
Maximum	16,532	27,326	49,058
Minimum	4,082	7,731	31,788
Average	8,657	16,287	41,041
Open-top hopper cars			
Maximum	29,947	38,086	69,111
Minimum	5,958	11,647	30,765
Average	13,178	23,020	44,886

Source: AAR

construction capacity, he points out, is still well above what anybody sees as freight-car demand in the near-term. But he's concerned about what might happen with anything more than a modest upturn in car orders in terms of the availability of components and even of basic steel materials.

Obviously, the carbuilding industry has changed from what it was less than a decade ago, when capacity was in the neighborhood of 100,000 cars a year. Through attrition and acquisition, there are fewer companies, fewer manufacturing facilities.

Carbuilding-capacity estimates today vary from 45,000 to about 60,000, with Trinity Industries at the top and Thrall Car second, and with Gunderson, Bethlehem Steel and Union Tank about equal in a third tier, followed by ACF Industries (which has been building in large part for its own account, Shippers Car Line). Trinity lists six manufacturing facilities (three for its Freight Car Division, three for its Tank Car Division), Thrall shows four plants, and all the other builders now work out of one plant each.

• **A component crunch?** The most optimistic forecast in the recent ARCI survey sees 1989 deliveries of 27,200 cars, and orders for about 32,000, so construction capability is not a foreseeable problem. But components?

Less obviously but just as surely, the freight-car-component part of the railway supply industry has shrunk, not just in volume capacity but also in the number of companies now producing key components. Today, while there are a half-dozen carbuilders, there are two suppliers of freight-car axles (one of which is owned by a carbuilder), three suppliers of wheels, and two suppliers of truck side frames and bolsters (with perhaps a third to join them). In these vital areas, a shortage of material, a problem of raw-material quality (such as one supplier has had), and/or a labor problem could put a severe crimp in production and thus in carbuilding capability.

Commercial considerations and the economics attached to them drive car acquisitions. History is not a very good indicator. But car-fleet numbers and the car-fleet condition, coupled with commercial/economic factors, may be.

History seems to show that the market is, if nothing else, unpredictable, influenced as much by politics as anything else. The real boom years were the years of incentive per diem and tax shelters, years when the Interstate Commerce Commission was preoccupied with what it saw as a boxcar shortage and years when owning a freight car or a piece of a fleet presented certain tax advantages.

In the best recent years for carbuilding, revenue freight ton-miles were lower than they were in the past several years, certainly lower than in the record-high year 1987. Increased efficiencies in car-movement skew the numbers. So does the use of higher-capacity cars.

• **Figuring the market.** But, there are indications that the long-awaited growth in freight-car acquisitions really is coming. Consider some of these factors:

—With the low level of purchases since 1981, the average age of the freight-car fleet has been going up. It was not so long ago that the jumbo covered hopper car became popular, but by one estimate the average age of the covered-hopper fleet today is 16 years or more.

—Car surpluses have been dropping sharply. In the depths of the recession of the 1980s, for example, the average surplus of covered hopper cars was 41,000-plus. Last year, it was 8,657 cars, and at its low point it was less than half of that. The numbers on surplus open-top hopper cars are higher, across the board, but the surplus that hit a top of more than 69,000 cars in1982 fell to a minimum of fewer than 6,000 cars in 1987. If you figure in the widely-held theory that cars still "surplus" are flawed in terms of economics, design, capacity, condition, and so forth, then you come to the conclusion that the remaining surplus doesn't mean much.

—Last year, carloadings in 17 of the 21 traffic categories measured by the Association of American Railroads went up, while ton-miles were hitting that record high. Freight-car utilization continued to improve. But the fact remains that the number of cars in the fleet, railroad and private, went down from 1,350,532 cars to fewer than 1,290,000, and the tonnage capacity of the fleet dropped from 115.9 million tons to 111.7 million. Meanwhile, grain loadings were at a record level, coal loadings were up, intermodal loadings were up, loadings of chemicals and products were up, to mention just four growth areas that are expected to continue to be growth areas.

—At least one carbuilder believes that total fleet size will continue to drop, to about 1.1 million cars and perhaps lower. Here, the theory is that perhaps one-third of the fleet is closely-managed and high-utilization equipment, another one-third gets average management and use and the lowest one-third isn't used much, and the fall-out is going to come in that bottom grouping. Even if that's true, however, demand should be there for equipment of newer design and higher capacity. And, it might be noted that the much-maligned boxcar, written off as something out of the past, is finding new use in the hands of imaginative railroad marketing officers. Railbox earned a profit last year, something that some people doubted could happen.

Estimated ownership—all revenue freight cars—railroad & private Dec. 1, 1987 vs Dec. 1, 1986

Ownership		Box	Covered Hopper	Gondola	Hopper	Flat	Refrig	All Other	Total	Capacity—Tons Average	Capacity—Tons Aggregate
Class I	1987	163,806	143,307	95,624	204,278	84,395	41,473	15,061	747,944	84.89	63,492,966
	1986	191,708	149,865	104,446	221,774	85,533	37,670	16,995	807,991	84.03	67,895,484
Class II & III	1987	44,503	13,532	16,354	20,083	5,747	3,742	3,061	107,022	84.27	9,018,744
	1986	43,111	13,249	15,370	20,938	5,079	3,388	3,263	104,398	84.12	8,781,960
Railbox – Railgon	1987	13,361	NA	1,617	NA	NA	NA	NA	14,978	78.90	1,181,764
	1986	13,412	NA	1,878	NA	NA	NA	NA	15,290	79.18	1,210,662
RRO&C Refrigerators	1987	NA	NA	NA	NA	NA	3,010	NA	3,010	NA	NA
	1986	NA	NA	NA	NA	NA	5,673	NA	5,673	NA	NA
Private	1987	786	129,348	31,426	24,872	44,123	4,727	181,435	416,717	90.54	37,729,577
	1986	1,149	129,517	31,319	26,036	45,802	3,393	179,964	417,180	89.81	37,466,936
Grand Total	1987	222,456	286,187	145,021	249,233	134,265	52,952	199,557	1,289,671	86.63	111,724,199
	1986	249,380	292,631	153,013	268,748	136,414	50,124	200,222	1,350,532	85.83	115,916,162

NOTE: Effective January 1, 1987, Insulated Equipped Box cars were excluded from Box and included in Refrigerator category.

Source: AAR

—Not always but sometimes, price increases are a harbinger of increasing demand, and prices are rising in the freight-car market. Steel prices are up, in part because of surcharges. Car-component prices are up, and prices on some major components will soon be going up again. These prices, vendors say, are still not equal to what they were in the halcyon days of car-building, but some of the increases are significant in percentage terms, 10% to almost 25% on certain products. At the same time, lead times are stretching out, even on basic steel where deliveries can sometimes run from 90 to 120 days. "There's less capacity," one carbuilder says, "and maybe there's product the mills would rather turn out."

—For component suppliers, railroad heavy-repair programs are providing a boost. Contract shops and even a carbuilder or two are also benefitting, perhaps because of labor costs that are lower than those in railroad-owned facilities.

—Companies dealing in reclamation of car components may come up against a problem, and some already are. Railroads are scrapping fewer cars because there are fewer left to scrap, and they're repairing the best of what there is. All of that is good news for suppliers of new components.

—While some carbuilders are concerned about possible shortages of components, others are not, noting that offshore suppliers are still interested in the U.S. market. Once before, in the big-building years, foreign suppliers penetrated the market, then dropped out when the freight-car market collapsed. They're still interested.

—If a market surge happens, some component suppliers may face a situation where they will have to do start-up on cold plants, facilities that have been mothballed but kept in operating condition. The problem may lie not in getting the machinery working but rather in getting supervision and a competent work force in place.

—If a surge in demand should come, in some areas suppliers would quite possibly be faced with decisions regarding the expansion of capacity, the building of new facilities. That, one component supplier says, "would be a gut-wrenching decision because of what we've all been through before."

—There are those who decry the control of railroads by holding companies with other interests. There are those who lament the rise of "the beady-eyed bean-counters" who look at all investments in terms of their return. But the ascendancy of the financial folks isn't all bad, not if they can figure out where railroads have their best chance to make a dollar and then put the investment in those directions.

• Targeting tomorrow's traffic. At some point, the question has to be asked—and answered—as to what markets railroads really want to pursue.

At this point, the answer seems to be in terms of intermodal and bulk commodities (although what some people are doing with the old boxcar would make you wonder).

Railway suppliers seem to have some confidence that railroads don't actually want to give up market share to motor carriers or to any other competitors, so long as the market is profitable.

Some markets are obvious. One has to do with grain, with covered hopper cars, with the record-year 1987 and with prospects that export traffic will increase. One has to do with coal, not with the inflated forecasts of production and use a few years ago, but with more realistic forecasts that have something to do with the impact upon power-generation of the Shoreham and Seabrook nuclear plant fiascoes and with the current predictions of increases in oil and gas prices.

And one market forecast has to do with intermodal.

At some point, the question of intermodal profitability may somehow be laid to rest. In the meantime, railroads and others will continue to pursue intermodal traffic, international and domestic. And here, the mix of the car fleet may have to undergo some change. For one thing, some observers see domestic containerization as a growth industry, finally. For another, some see the coming of a greater balance between import and export loaded movements, thanks to the changing relationships between the dollar and foreign currencies. For a third, which has directly to do with rail equipment, some see demand for greater inland movement of 20-foot containers, which heretofore have largely been kept captive to all-water movement because of economic factors which added up to the fact that the water carriers could make more money by shipboard movement of the short boxes. Railroads are already seeing more 20-foot units and the growth, some say, will continue, meaning that more well-cars will have to be built to handle 20-foot containers

Double-stack equipment continues to be the hottest item on the intermodal scene. Trinity Industries built these five-unit "Backpackers."

in all bottom positions, even as railroads cope with the handling of 45- and 48-foot containers as well as the standard 40-foot ISO units.

• **As the builders see it.** In the meantime, what do the carbuilders really think? Consider some of these observations:

—Trinity Industries sees continued strength in intermodal and in orders related to the petrochemical industry. But Trinity's top people are also seeing activity in areas where there hasn't been much: "It wasn't so long ago that people were saying that nobody would ever again build a boxcar. But there are inquiries out there regarding boxcars. The market for coal cars was dormant last year, but it's also coming back." Southern Companies is expected to place an order with a builder this month for 500 aluminum-bodied fast-discharge cars, and that could be just a beginning. Overall, Trinity notes, 1987 had a relatively strong finish, "and we're looking for a stronger 1988."

—Thrall Car finds encouragement in the trend lines, forecasting a better 1988 in terms of orders but stopping short of calling the upturn a "significant" one. Thrall has been strong in equipment for intermodal, plastics, and building-products service, all areas in which traffic has been on the increase, areas which are expected to see further growth.

—At Gunderson, marketing-and-sales people see "everything poised for a rebound," though they're careful to add that the industry has thought this before and it didn't happen. Gunderson has been buoyed by its first production order for the so-called heavy-lift double-stack container car. There's some question as to whether the market will be as good for center-partition cars as it's been for the past couple of years. But there seems to be no question as to the continued growth of car-refurbishing operations.

—Observers who questioned Bethlehem Steel's staying-power a few years ago have backed off. Bethlehem has been showing strength in a couple of areas, mainly in the intermodal and coal car markets. It's one of Bethlehem's people who heads the ARCI market forecast committee, and it's perhaps an indication of the outlook that he was a bit surprised that builder and supplier predictions did not run higher than they did.

—Union Tank Car looks back at a 1987 that was the best year for tank car production in a long time, and looks ahead to a "very strong" 1988. The market has been gradually expanding for more than a year, Union says, all marketable cars are leased, and increased production may be in the works. Interestingly, during the lean years, just a couple of rather narrow markets kept builders working, but now demand is broadening out especially as the chemical processing industry gets healthier and expands.

—General American is also coming off a good year, with car fleet additions up, utilization up, loadings up, and with indications that the trends will continue. The GATX car leasing and management subsidiary, General American Transportation, in fact, showed record earnings for 1987.

—As part of the broad restructuring of the carbuilding industry that has taken place since the last high-production year, manufacturing and/or marketing agreements have been worked out by Trinity and GATX and by Union Tank and Thrall. In each case, the marriages seem to be performing up to expectations.

—If there is a wild card in the deck, it's South Korea. Hyundai cracked the U.S. market with two orders for 100 intermodal platforms each from Trailer Train, and there have been rumors to the effect that Hyundai is interested in acquiring facilities here. South Korea's Daewoo, meanwhile, will be shipping 200 flat car kits for assembly in the U.S. by Transcisco Industries (formerly the PLM Companies) and has entered into a long-term joint venture with Transcisco for manufacturing and marketing cars "of lower cost and high quality."

Thus far, not many major railroads have announced their total equipment programs for 1988. An exception is Norfolk Southern, which will be acquiring small-cube covered hopper cars, covered gondolas, auto racks, and aggregate cars as well as RoadRailer units. Trailer Train has its plan in place, (p. 14) and has placed its first orders, Conrail has announced the acquisition of auto racks, and BN says it will increase its capital budget for freight cars and intermodal equipment. Both NS and CSX have extensive car rehabilitation and upgrading programs scheduled for 1988, including carbody replacements on 1,000 open-top hopper cars by NS. But the largest such program may be the one scheduled by Union Pacific, which plans modification rebuild-repair of 10,000 cars this year at four shops.

Between what's firm and what's forecast, it seems clear that the market is back—somewhat.

For carbuilders and component suppliers, it won't be nirvana, not yet. But after the past few years, even a mini-boom is something to cheer about. ■

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April 1988

Railway Age

...for the new age of railways and rail transit

THE ARCHITECTS OF CHANGE:

"The only way we're going to meet the labor problem is head-on. We're not going to back away."

C&NW's James R. Wolfe

Brendan McNally
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Bethesda MD 20814-3389
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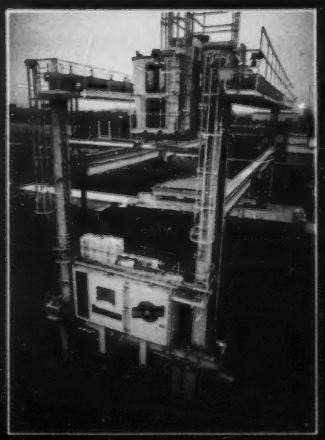


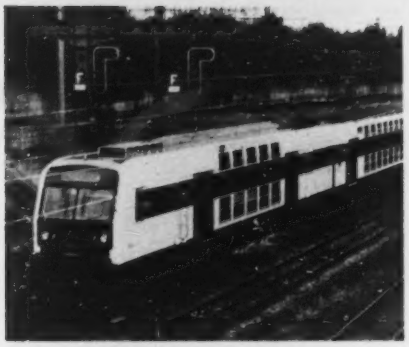
What to look for at Intermodal Expo '88

Automatic fare collection: Selecting the right system

April 1988

Railway Age

...for the new age of railways and rail transit



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35 The architects of change: C&NW's James R. Wolfe

North Western's CEO is ready to meet head-on the crew-consist issue, which he contends this industry has not confronted directly and with courage. "We are not going to use snake-oil remedies," he promises.

39 Labor-management: Confrontation in the cards?

As a new season of demands and counter-demands opens, both railroads and unions appear ready to go to the mat. But confrontation isn't likely for another year.

44 Equipment suppliers rise to the intermodal challenge

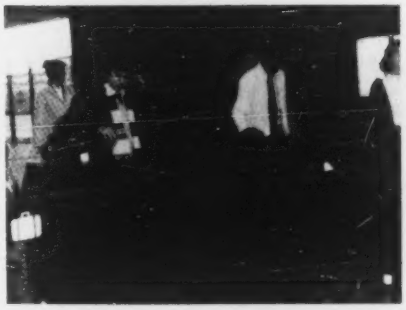
The operators say they want heavier-duty stacktrain equipment and they're getting it. Meanwhile, carless technology is starting to come on very strong.

47 What to look for at Intermodal Expo '88

In Atlanta this month, more than 200 suppliers of equipment and services will strut their stuff at "the greatest intermodal show on earth." Here's a preview.

51 AFC: Picking the right system

Automatic fare collection systems can be custom-tailored to fit the needs of both single-fare and multi-fare networks. A supplier describes the options.



55 Eastern operators eye bi-levels

Three eastern commuter railroads may soon introduce double-deckers. French and Japanese builders are competing for orders that could add up to 200 to 300 cars.

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Market Outlook

Equipment

Metropolitan Transit Development Board (San Diego): Ordered 21 light rail vehicles from Siemens Duewag of West Germany at a cost of $23.8 million.

Southern Pacific: Ordered 35 B40-8 model diesel-electric locomotives from General Electric and 15 GP60 models from the Electro-Motive Division of General Motors, all for delivery in this year's second and third quarters. Cost is estimated at $50 million.

Union Pacific: Plans to acquire 300 new center-beam flatcars for lumber service at a cost of around $13.5 million. The order will consist of 120 60-foot cars and 180 73-foot cars.

Facilities

Amtrak: Has drawn up a capital budget of $103 million for FY89. Funds would come from a $72.6-million capital appropriation requested from Congress (along with $557.4 million in operating assistance), plus capital which Amtrak generates internally through corporate development and real estate projects.

Southern California Rapid Transit District: Awarded a contract in excess of $11 million to General Railway Signal for the supply of GRS Cabmatic coded cab signal and speed control equipment and such wayside equipment as electric switch machines, automatic train stops, and signaling. The contract, which is to be completed in 1992, covers 4½ miles of main line, five stations, and 15 married car pairs with options for additional car and wayside equipment.

Shanghai Metro Corp.: Selected De Leuw, Cather International Inc. as systems and preliminary design consultant for the 8.9 mile North-South Line of the Metro system planned for China's largest city.

PATH: Awarded a $5,746,101 contract to Texas Instruments of Iselin, N.J., for the supply of electrical power control and communication system components. PATH also awarded a $2,247,000 contract to Schiavone Construction Co. of Secaucus, N.J., for work at the Pavonia/Newport Station in Jersey City, and a $1,292,760 contract to Railroad Construction Co. of Paterson, N.J., for crossovers at the South Street Yard in Newark.

NASA Railroad: Will lay approximately 3.5 miles of 132-pound cwr as part of an ongoing program to upgrade the 12-mile main line at the Kennedy Space Center, Cape Canaveral, Fla. New rail acquired through A&K Railroad Materials will be placed on concrete ties, acquired through Florida East Coast, on new granite ballast.

Revenue freight carloadings

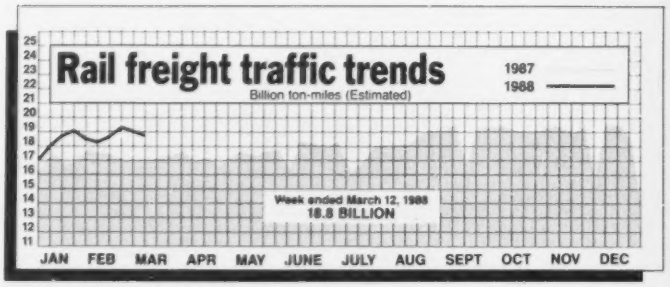
Commodity	March 12 week	March 5 week	Feb. 27 week	Feb. 20 week	Feb. 13 week
Grain	33,003	34,181	34,398	32,649	32,415
Other farm products	3,430	3,358	3,223	3,919	3,988
Metallic ores	14,833	12,891	14,423	11,929	11,065
Coal	113,068	117,731	121,427	117,307	113,207
Crushed stone, gravel and sand	14,493	13,703	12,789	12,822	10,703
Nonmetallic minerals	9,655	9,954	10,369	10,046	10,097
Grain mill products	10,262	10,539	10,970	10,477	10,823
Food and kindred products	10,922	11,490	11,754	11,106	11,106
Primary forest products	10,157	10,928	10,766	10,334	10,650
Lumber and wood products except furniture	8,198	8,092	8,698	7,832	7,852
Pulp, paper and allied products	12,416	12,673	12,207	12,496	12,313
Chemicals and allied products	28,625	28,916	28,318	26,707	28,440
Petroleum products	5,008	4,804	5,012	4,790	5,092
Stone, clay and glass products	10,652	10,732	10,494	9,434	9,136
Coke	5,149	5,700	5,720	5,837	5,594
Metals and products	10,749	11,457	12,124	10,586	10,416
Motor vehicles and equipment	21,604	19,849	20,129	20,341	19,640
Waste and scrap materials	10,332	10,291	10,052	9,661	9,479
Forwarder and shipper assn. traffic	2,578	2,712	2,598	2,519	2,505
All other carloads	82,013	83,151	82,635	77,671	79,343
LCL traffic	—	—	—	—	—
Total Cars Loaded	**417,147**	**423,152**	**428,106**	**408,463**	**403,864**
% change from previous year	5.0	7.7	9.0	6.0	1.7
Estimated revenue ton-miles (billions)	**18.8**	**19.1**	**19.3**	**18.4**	**18.2**
% change from previous year	5.9	9.1	10.3	6.1	2.5

Total:	**1988**	**1987**	**% change**
10 weeks	185.2	173.7	6.6

Piggyback loadings

	March 5 week	Feb. 27 week	Feb. 20 week	Feb. 13 week	Feb. 6 week
Trailers/containers	123,168	107,000	100,607	102,985	106,812

Cumulative total, 9 weeks		**% change from 1987**
Trailers/containers	1,046,731	15.6



Source: Association of American Railroads

Massachusetts Bay Transportation Authority: General Railway Signal is the apparent low bidder, at $3.7 million, on a contract for signal improvements to an MBTA perimeter line.

Washington Metropolitan Area Transit Authority: General Railway Signal is the apparent low bidder, at $12.7 million, on a contract to supply automatic train control equipment on approximately four miles of the "E" and "F" routes.

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May 1988

Railway Age

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BN and ARES: "Control" in a new dimension

Regional Railroad Planner's Guide

Buffalo's LRRT continues to confound the skeptics

May 1988

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REGIONAL RAILROAD PLANNER'S GUIDE

Rx for regionals RR7

Why do some short lines and regionals flourish while others falter? There are no easy answers but an examination of the planning and operating practices of key properties provides some clues.

Regional railroad suppliers guide.....RR19

A directory of suppliers of consulting services, financing, and equipment who can help planners get a new regional rolling.

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As railroads move fast to equip locomotive fleets with flange lubricators that dramatically reduce fuel consumption, the search continues for the optimum lubricant.

35 Buffalo's LRRT confounds the skeptics

Much of the criticism aimed at this high-cost, high-tech line is justified. But its high performance in per-car ridership is spurring local support for extensions.

37 LRT in '91 is Baltimore goal

With state funding assured, Maryland's MTA will move swiftly to build a 27-mile line that will use available rights-of-way and cost only $11 million a mile.

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The railroad industry is closely watching tests of the Rockwell train control system now under way on BN's Iron Range, and there may be other buyers.

28 NEC maintenance: Machines that make a difference

State-of-the-art mechanized maintenance helps Amtrak keep Corridor track in shape to handle a challenging mix of high-speed passenger and heavy freight trains.

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Market Outlook

Equipment

Canadian National: Placed orders for 90 locomotives valued at $180 million (Canadian) with two builders—Diesel Division of General Motors of Canada Ltd., which will deliver 60 3,800-hp, SD-60F units starting in this year's fourth quarter; and General Electric of Erie, Pa., which is to supply 30 4,000-hp, Dash-8 units beginning in the first quarter of 1990. CN also plans to lease 20 2,000-hp, GP-38 units from the Diesel Division of General Motors for three months during the period of peak locomotive demand next winter.

Santa Fe: Ordered 20 3,900-hp GP60 diesel-electric units from General Motors' Electro-Motive Division and 20 4,000-hp B40-8 units from General Electric. GM was to begin delivery in May, GE in June. The four-axle units will be used primarily in high-speed intermodal service.

Facilities

BC Rail: Has budgeted $99.1 million (Canadian) for capital improvements in 1988, of which $73.5 million is earmarked for track and roadway. This compares with actual capital expenditures of $72.6 million in 1987.

CSX Transportation: Has budgeted $540 million for 1988 capital improvements, of which $224.8 million is earmarked for track. Major track projects include laying of 200 miles of new rail and 400 miles of relay rail; installation of 1.8 million wooden crossties and 50,000 concrete ties; and surfacing of 8,700 track miles.

Los Angeles County Transportation Commission: Awarded a $14-million prime contract to Transcontrol and Ansaldo Trasporti, in joint venture, to supply a complete signaling system for the Long Beach-Los Angeles light rail project.

Washington Metropolitan Area Transit Authority: Awarded a $12.7-million contract to General Railway Signal for automatic train control equipment for approximately four miles of the "E" and "F" routes in the District of Columbia. This contract brings the total miles of the WMATA system under GRS contracts to 81.

Revenue freight carloadings

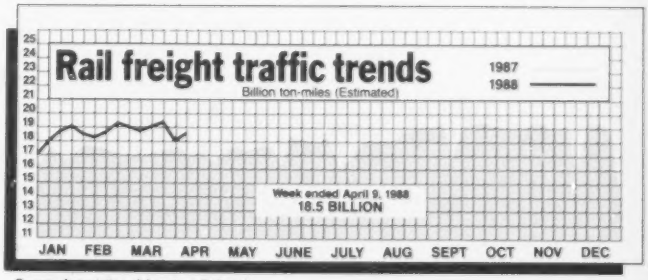
Commodity	Apr. 9 week	Apr. 2 week	Mar. 26 week	Mar. 19 week
Grain	33,710	33,520	35,763	34,733
Other farm products	3,641	3,101	3,421	3,359
Metallic ores	17,076	15,802	13,820	14,246
Coal	117,390	110,558	123,143	118,038
Crushed stone, gravel and sand	16,404	15,025	15,934	14,066
Nonmetallic minerals	10,180	9,396	9,927	9,630
Grain mill products	10,454	9,824	10,715	10,113
Food and kindred products	10,608	10,523	11,077	10,859
Primary forest products	9,373	9,464	10,257	10,131
Lumber and wood products except furniture	7,786	8,422	8,533	8,230
Pulp, paper and allied products	12,287	12,394	12,692	12,322
Chemicals and allied products	28,920	26,226	29,196	28,605
Petroleum products	5,257	4,278	4,999	5,050
Stone, clay and glass products	11,132	10,530	11,156	10,956
Coke	6,023	5,321	5,655	5,460
Metals and products	10,298	11,886	11,073	10,806
Motor vehicles and equipment	18,409	17,492	21,417	21,489
Waste and scrap materials	8,776	9,205	10,106	10,474
Forwarder and shipper assn. traffic	2,412	2,665	2,584	2,462
All other carloads	74,736	79,613	79,595	81,322
Total Cars Loaded	**414,881**	**405,245**	**414,881**	**422,351**
% change from previous year	3.6	4.2	3.6	4.7
Estimated revenue ton-miles (billions)	18.5	18.0	18.5	19.0
% change from previous year	5.8	6.9	5.8	6.1

Total:	1988	1987	% change
13 weeks	241.6	226.4	6.7

Piggyback loadings

	April 2 week	March 26 week	March 19 week	March 12 week
Trailers/containers	108,169	109,784	108,756	118,630

Cumulative total, 13 weeks		% change from 1987
Trailers/containers	1,394,964	4.9


Rail freight traffic trends
Billion ton-miles (Estimated)
1987
1988
Week ended April 9, 1988
18.5 BILLION
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

Source: Association of American Railroads

Freight cars

	DELIVERED 1st quarter 1988	DELIVERED 1st quarter 1987	ORDERED 1st quarter 1988	ORDERED 1st quarter 1987	ON ORDER AND UNDELIVERED April 1, 1988	ON ORDER AND UNDELIVERED April 1, 1987
Built new by carbuilders	4,457	2,687	7,209	3,860	12,692	3,850
Built new in RR shops	0	0	35	0	35	0
Built new—total	**4,457**	**2,687**	**7,244**	**3,860**	**12,727**	**3,850**
Rebuilt	0	0	101	0	281	0
TOTAL	**4,457**	**2,687**	**7,345**	**3,860**	**13,008**	**3,850**
Locomotives (new and rebuilt)	84	22	N/A	N/A	120	30

Source: Transportation Div., AAR and American Railway Car Institute

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June 1988

Railway Age

...for the new age of railways and rail transit

Fleet management, CSX style

How Santa Fe retrains locomotive engineers

June 1988

Railway Age

...for the new age of railways and rail transit

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Cover photo: John B. Corns, CSX

45 CSX streamlines supply lines

Improved efficiency, reduced inventory, and big dollar savings have been produced by development of a Direct Vendor Service system for purchasing operating supplies.

49 Chicago maps the missing link

CTA is closing a glaring gap in its rapid transit system with construction of a Loop-to-Midway line at a cost of nearly half a billion dollars.

29 Fleet management, CSX style

In a vigorous push to maximize the return on its $2 billion of assets, CSX Equipment has posted dramatic gains in shop productivity and car utilization.

39 CN's "Comfort cab" is coming south

Santa Fe is planning a Chicago-Los Angeles demonstration run of a locomotive with control-console cab design and other modifications devised in Canada.

36 How Santa Fe retrains engineers

After retraining and reactivating one engineer following a derailment, ATSF developed a program that has now provided refresher training for its entire roster.

42 Microwave: A landmark ruling

In an important development for railroads, the FCC has upheld the right of private microwave systems to interconnect with public networks at sites of their choice.

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Market Outlook

Equipment

Burlington Northern: Ordered eight Beth-Combo cars, a new combination boxcar-hopper car, from Bethlehem Steel Corp., for delivery in June. The cars can carry cargoes from grain to lumber.

- BN has also leased 550 new 3,000-cubic foot capacity covered hopper cars from Pullman Leasing. The cars will be used in cement and aggregate service.

CSX Equipment: Ordered 2,000 100-ton coal gondolas from Bethlehem Steel Corp. and 2,000 jumbo covered hoppers from Trinity Industries, Inc., for delivery beginning in September. The entire order should be in service by mid-1989.

CSX Transportation: Will equip its entire fleet of road locomotives with TrackMaster (Kipp) wheel flange lubricators, starting with 610 units this year. Terry Singer, vice president of marketing, Kipp Lubrication Systems, said the contract was awarded after two years of tests and evaluation of equipment offered by seven companies, three based in the U.S. and one each in Japan, Germany, Switzerland and France.

Griffin Wheel Co.: Last month was recalling 160 workers to its wheel manufacturing plant at Bessemer, Ala., which was closed in June 1987. In its May 17 announcement, Griffin said it was reopening the plant to meet increased demands and expected to pour the first wheels within two months.

Norfolk Southern: Will purchase 600 Mark V RoadRailer units for its Triple Crown Services, bringing its total fleet to 1,600 units. The 48-foot by 102-inch Mark V has detachable rail wheels. The Mark IV, which NS currently uses, has permanently attached rail wheels.

Northern Virginia Transportation Commission (NVTC): Is negotiating with Sumitomo for the purchase of 38 commuter cars (10 of which will be cab cars), and with Morrison-Knudsen for eight diesel-electric locomotives. NVTC plans to open two new commuter lines, between Fredericksburg and Washington, D.C. and between Manassas and Washington, with service expected to begin in 1989 (*RA*, May, p. 22).

Union Pacific: Ordered an additional 100 3,148-cubic-foot-capacity Twin-Hopper® covered hopper cars from Pullman Leasing Co. An earlier order, to meet rising demand for cement and aggregate services, was for 50 cars.

Facilities

Maryland DOT: Awarded a contract to De Leuw, Cather & Co. to provide systems engineering consultant services for the central line of a proposed $290-million light rail system in Baltimore (*RA*, May, p.37). De Leuw, Cather will supervise the procurement and installation of the system and provide support services through the first six months of revenue service, which is scheduled to begin in 1992.

PATH: Awarded a $4.5 million contract to Bethlehem Steel Corp. for rail for its new $205-million, 57-acre car maintenance facility in Harrison, N.J., expected to be operating in 1990. The facility will have 11 tracks for repairs and maintenance, handling up to 48 transit cars simultaneously.

Revenue freight carloadings

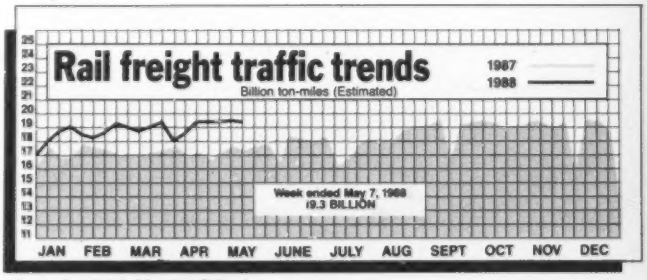
Commodity	May 7 week	April 30 week	April 23 week	April 16 week
Grain	31,800	31,771	32,723	33,671
Other farm products	3,488	3,265	3,506	3,672
Metallic ores	20,580	19,792	19,803	18,436
Coal	118,370	121,738	118,610	121,108
Crushed stone, gravel and sand	18,106	16,939	17,360	16,830
Nonmetallic minerals	10,693	11,182	10,773	10,550
Grain mill products	10,864	11,131	11,148	10,948
Food and kindred products	11,175	10,942	11,366	11,109
Primary forest products	9,865	9,739	9,364	9,890
Lumber and wood products except furniture	7,484	9,103	8,184	8,113
Pulp, paper and allied products	12,432	12,646	12,031	12,269
Chemicals and allied products	28,509	27,298	28,890	29,391
Petroleum products	5,200	5,342	4,913	4,818
Stone, clay and glass products	11,379	11,353	11,492	12,074
Coke	5,742	6,257	5,848	6,279
Metals and products	11,086	11,861	11,234	10,977
Motor vehicles and equipment	22,586	22,328	22,639	22,416
Waste and scrap materials	9,313	10,381	10,054	9,974
Forwarder and shipper assn. traffic	2,552	2,726	2,649	1,557
All other carloads	80,862	81,584	78,995	79,525
Total Cars Loaded	**432,086**	**437,378**	**431,582**	**434,627**
% change from previous year	7.1	6.6	8.9	12.4
Estimated revenue ton-miles (billions)	19.3	19.4	19.3	19.3
% change from previous year	8.9	8.0	10.6	14.0

Total:	1988	1987	% change
17 weeks	337.4	313.9	7.5

Piggyback loadings

	April 30 week	April 23 week	April 16 week	April 9 week
Trailers/containers	111,494	107,419	108,642	103,698

Cumulative total, 17 weeks		% change from 1987
Trailers/containers	1,825,552	5.2


Rail freight traffic trends
Billion ton-miles (Estimated)
1987
1988
Week ended May 7, 1988
19.3 BILLION
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

Source: Association of American Railroads

7/26/88

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July 1988

Railway Age

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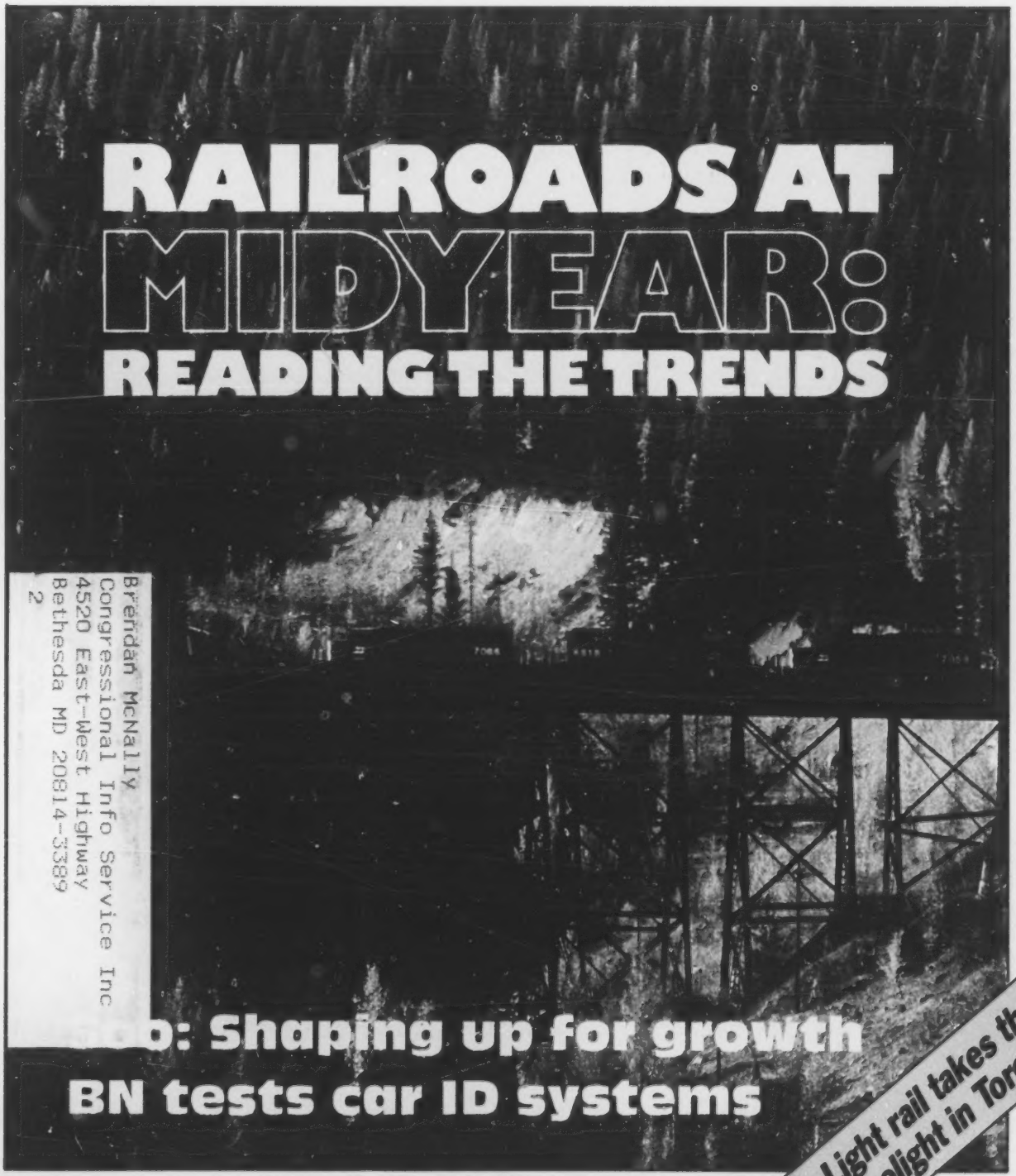

RAILROADS AT MIDYEAR: READING THE TRENDS

Brendan McNally
Congressional Info Service Inc
4520 East-West Highway
Bethesda MD 20814-3389
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BN tests car ID systems

Light rail takes the limelight in Toronto

July 1988

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32 Railroads at midyear: "The trends are good"

Traffic is highballing toward another record high; with rate pressures easing, earnings will also rise—good news not only for railroads but also for the rail supply industry.

41 New equipment: How much? Who pays?

Busy days are ahead for locomotive builders and rebuilders; carbuilders face a cloudier future, panelists at a *Railway Age*/ Irving Trust conference concluded.

45 When boxcars fill the bill

While not usually regarded as intermodal vehicles, boxcars become just that when linked to transload centers.

49 Vehicle ID: The transponder solution

ACI is still a dirty acronym to most railroads, but transponder-based systems BN is now testing are something else again.

53 Soo shapes up for growth

Rebuilding the Twin Cities-Milwaukee main line is part of a program aimed at carving out new marketing niches.

59 Toronto: LRT's growing role

New light rail cars are being phased in, a Harbourfront line is being built, and further extensions are possible.

61 Why high speed plans languish

FRA's John Riley says planners must broaden their special-interest constituency, then drum up more public support.

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Cover photo: BN at Sheeps Creek Bridge, Essex, Montana, by Gary J. Benson

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Market Outlook

Equipment

Amtrak: Reached an agreement with Bombardier for the purchase of 50 passenger coaches valued at approximately $50 million, with an option for an additional 50 cars at the same price and a second option for another 50 cars at a price to be negotiated. (Details, p. 28).

Conrail: Placed orders for 50 microprocessor-controlled diesel-electric locomotives, valued at $65 million, to be delivered in the first half of 1989—25 3,800-hp SD60 units from the Electro-Motive Division of General Motors; and 25 4,000-hp C40-8 units from General Electric.

General American Transportation Corp: Has acquired 184 tank cars from Chino Mines Co., which it will lease back to Chino under a full service lease; and 115 surplus cars from Monsanto Co., which will be placed in the service of other General American customers. The two transactions were valued at $7 million. Also completed was the acquisition of 692 tank cars from Olin Corp., under a long-term lease back agreement.

Massachusetts Bay Transportation Authority: Awarded a $45.5-million contract to Bombardier for 50 commuter coaches. They will be identical to 40 coaches which Bombardier supplied to MBTA in 1987. The cars are based on a Pullman design which Bombardier acquired when it purchased Pullman Technology Inc. in 1986. Deliveries are to begin in the summer of 1989.

Trailer Train: Has increased its 1988 capital budget to $170 million from a previously announced $150 million.

Facilities

Chicago, Central & Pacific: A $4.4-million program to upgrade 60 miles of CC&P between the Iowa cities of Fort Dodge and LeMars includes installation of new ties and ballast, surfacing, and bridge repairs.

CSX Transportation: Will construct a new $5.6-million car repair shop at Cumberland, Md., which will replace two existing facilities. The new facility will be used for routine maintenance and inspections on cars operating through the Cumberland area and is designed to improve turnaround time for unit coal trains serving mines in northeastern West Virginia and western Maryland.

Metra (Chicago): Awarded a $44.5-million contract to Benson/Rausch Joint Venture for reconstruction of its Western Avenue yard and maintenance base. The four-year project includes construction of a 105,000-square-foot preengineered coach and locomotive heavy repair shop, a train-washing facility, combined engineering maintenance and security building, and a locomotive fueling and sanding facility.

Revenue freight carloadings

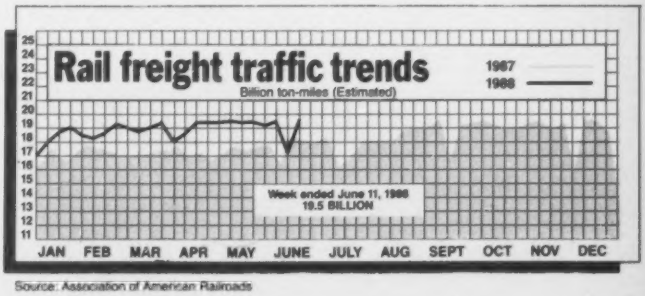
Commodity	June 11 week	June 4 week	May 28 week	May 21 week	May 14 week
Grain	32,879	26,905	31,692	31,061	32,955
Other farm products	3,992	3,518	3,765	3,568	3,470
Metallic ores	22,252	18,764	19,635	19,164	20,841
Coal	117,846	106,125	120,307	115,653	118,561
Crushed stone, gravel and sand	19,044	15,854	18,768	18,355	19,243
Nonmetallic minerals	10,550	9,798	10,561	11,606	10,968
Grain mill products	11,002	9,629	11,261	11,108	10,697
Food and kindred products	10,971	9,746	11,340	10,953	11,051
Primary forest products	10,030	8,586	10,157	10,214	9,909
Lumber and wood products except furniture	7,931	6,829	8,567	8,100	7,898
Pulp, paper and allied products	12,323	12,755	12,648	12,265	12,220
Chemicals and allied products	26,956	23,952	26,597	27,285	27,182
Petroleum products	5,269	4,763	5,139	5,172	5,173
Stone, clay and glass products	11,542	9,986	11,933	11,752	11,777
Coke	5,797	5,429	5,333	5,419	6,011
Metals and products	10,419	10,340	11,444	10,336	10,092
Motor vehicles and equipment	22,555	18,906	22,127	23,426	22,338
Waste and scrap materials	9,771	8,094	9,867	10,213	9,895
Forwarder and shipper assn. traffic	2,439	2,186	2,595	2,601	2,437
All other carloads	82,060	69,189	82,470	79,836	80,173
Total Cars Loaded	435,848	381,396	436,286	423,987	432,891
% change from previous year	2.8	(10.2)	18.6	3.3	6.4
Estimated revenue ton-miles (billion)	19.5	17.2	19.6	19.1	19.4
% change from previous year	5.2	(8.4)	20.0	5.3	7.6

Total:	1988	1987	% change
23 weeks	437.7	403.6	8.4

Piggyback loadings

	June 4 week	May 28 week	May 21 week	May 14 week	May 7 week
Trailers/containers	100,671	110,969	110,626	110,676	110,471

Cumulative total, 22 weeks		% change from 1987
Trailers/containers	2,369,579	5.4


Rail freight traffic trends
Billion ton-miles (Estimated)
1987
1988
Week ended June 11, 1988
19.5 BILLION
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

Source: Association of American Railroads

Santa Fe: Will spend more than $7 million on 1988-89 expansion of intermodal terminals at Chicago and Kansas City. Improvements at Chicago will include construction of two loading/unloading tracks, widening of the space between existing intermodal tracks and paving of an additional 10 acres for trailer/container storage and handling. At Kansas City, Santa Fe will construct additional running tracks to expedite movement of intermodal trains. The addition of a Travelift crane will give the terminal three overhead loading/unloading devices.

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August 1988

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THE ARCHITECTS OF CHANGE-

Brendan McNally
Congressional Info Service CIS
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Santa Fe's John Swartz

C&S: Sizing up the ATCS market

Car & Locomotive Repair Directory

Minneapolis votes for light rail transit

August 1988

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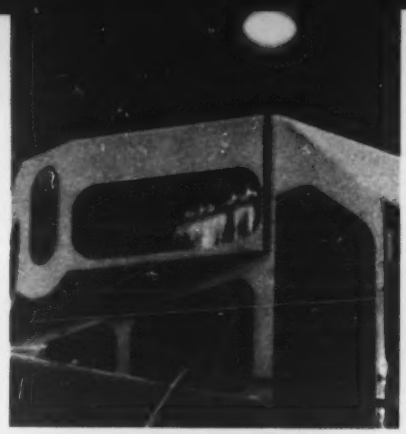


Features

37 The architects of change: Santa Fe's John Swartz

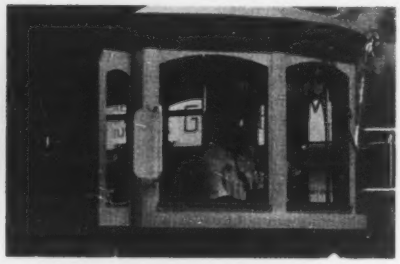
"We can market our service well and gain market share even without the merger," says Santa Fe's president. "We're going to have to be a little sharper and a little more inventive. And we will be."

45 ATCS: More than "train control"

Automatic Train Control Systems research is uncovering some bonus benefits. One example: The work-order system UP will install in advance of full ATCS implementation.

51 Light rail for Twin Cities?

Hennepin County (Minneapolis) commissioners have voted to proceed with an LRT plan, but less than half of the needed funding is firm. St. Paul still has not acted on a plan.



54 LRT comes to Galveston

Four self-propelled trolleys, custom-built by Miner to a turn-of-the-century design, will operate on a 4.7 mile loop connecting residential, commercial, and historic districts.

56 TIPS turns commuters on

About a third of Metro North's incoming customer calls are handled, fast and efficiently, by a Travel Information Process System that uses digitally-stored speech.

RR-1 1988 Railroad Repair Directory

Railway Age's 1988 pullout guide to freight car and locomotive contract repair shops in Canada and the U.S. starts immediately following p. 36 in this issue's regular pagination.

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Cover photo: By Gary J. Benson

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34 Lucas acquires OB transit assets

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Market Outlook

Equipment

Conrail: Will acquire 1,000 fully enclosed multi-level auto carriers, valued at $34.3 million. The railcars are composed of vehicle racks built by Thrall Car Manufacturing Co. installed on flatcars, which will be leased from Trailer Train Corp. The cars are scheduled for delivery during the first half of 1989.

New York City Transit Authority: Awarded a $130-million contract to Morrison-Knudsen for the remanufacture of 296 R-32 cars at M-K's Hornell, N.Y., shops.

Facilities

BART: Is negotiating with Bechtel Civil, a partner in Parsons-Brinckerhoff-Tudor-Bechtel, for a $3.8-million contract to provide engineering services for the preliminary design of BART's 13-mile extension from Bay Fair to Dublin/Pleasanton. The $230-million extension is anticipated to be completed by 1995.

Conrail: Will invest $6.4 million this year to upgrade the Detroit-Ypsilanti segment of its Michigan Line, completing a four-year program to install continuous welded rail on the 145-mile line between Detroit and Kalamazoo. Thirty-six miles of rail has already been installed; other upgrading this year will include replacement of 4,615 crossties, surfacing of 36 miles of supporting railbed, and rehabilitation of 29 grade crossings.

PATH: Directors authorized construction of a new tunnel emergency ventilation structure and an electrical substation at 15th St. in Jersey City, N.J., at a cost of $61 million. A total of six such structures are called for in PATH's tunnel emergency ventilation system; two have already been completed.

- Awarded an $8.8-million prime contract to Transcontrol Corp. and Ansaldo Trasporti, a joint venture, to provide a yard signal system for its new Harrison main repair facility at Kearny, N.J. The system, which will include a control center to operate and monitor some 84 signals and 55 switch layouts, is scheduled for completion by 1990.

Revenue freight carloadings

Commodity	July 16 week	July 9 week	July 2 week	June 25 week	June 18 week
Grain	29,843	29,690	31,539	34,550	33,557
Other farm products	3,476	3,260	3,740	3,757	3,722
Metallic ores	21,765	22,360	21,718	21,717	20,167
Coal	114,422	82,268	101,461	119,677	118,743
Crushed stone, gravel and sand	18,322	15,895	18,076	19,551	18,755
Nonmetallic minerals	10,413	9,738	10,613	9,818	10,029
Grain mill products	10,525	9,057	10,822	10,298	10,936
Food and kindred products	10,643	8,858	11,476	11,010	11,004
Primary forest products	9,875	7,316	9,633	9,665	10,248
Lumber and wood products except furniture	7,062	5,467	8,090	8,112	8,180
Pulp, paper and allied products	11,832	11,486	12,692	12,635	12,394
Chemicals and allied products	26,897	24,568	27,461	26,884	27,437
Petroleum products	5,208	4,754	5,556	5,647	5,370
Stone, clay and glass products	11,746	10,039	11,820	11,606	11,715
Coke	5,955	5,761	5 409	5,733	5,701
Metals and products	10,614	8,422	10,793	10,502	10.239
Motor vehicles and equipment	12,456	12,715	20,206	22,120	22,290
Waste and scrap materials	9,279	7,184	9,046	9,007	9,723
Forwarder and shipper assn. traffic	2,326	2,001	2,634	2,444	2,492
All other carloads	78,182	68,092	86,106	83,935	82,575
Total Cars Loaded	**410,842**	**348,931**	**418,891**	**438,668**	**435,277**
% change from previous year	2.3	(3.6)	18.6	3.3	2.4
Estimated revenue ton-miles (billions)	18.6	16.3	19.7	19.4	19.2
% change from previous year	4.4	(2.2)	19.1	4.3	4.9

Total:	**1988**	**1987**	**% change**
28 weeks	530.9	491.5	8.0

Piggyback loadings

	July 9 week	July 2 week	June 25 week	June 18 week	June 11 week
Trailers/containers	94,207	116,858	114,082	112,273	111,908

Cumulative total, 27 weeks		**% change from 1987**
Trailers/containers	2,918,464	5.3

Source: Association of American Railroads

Freight cars

	DELIVERED 2nd quarter 1988	DELIVERED 2nd quarter 1987	ORDERED 2nd quarter 1988	ORDERED 2nd quarter 1987	ON ORDER AND UNDELIVERED July 1, 1988	ON ORDER AND UNDELIVERED July 1, 1987
Built new by carbuilders	4,598	3,198	9,131	4,780	17,225	5,432
Built new in RR shops	0	0	35	0	30	0
Built new—total	**4,598**	**3,198**	**9,166**	**4,780**	**17,255**	**5,432**
Rebuilt	70	0	0	0	211	0
TOTAL	**4,668**	**3,198**	**9,166**	**4,780**	**17,466**	**5,432**
Locomotives (new and rebuilt)	108	39	N/A	N/A	126	7

Source: Transportation Div., AAR and American Railway Car Institute

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September 1988

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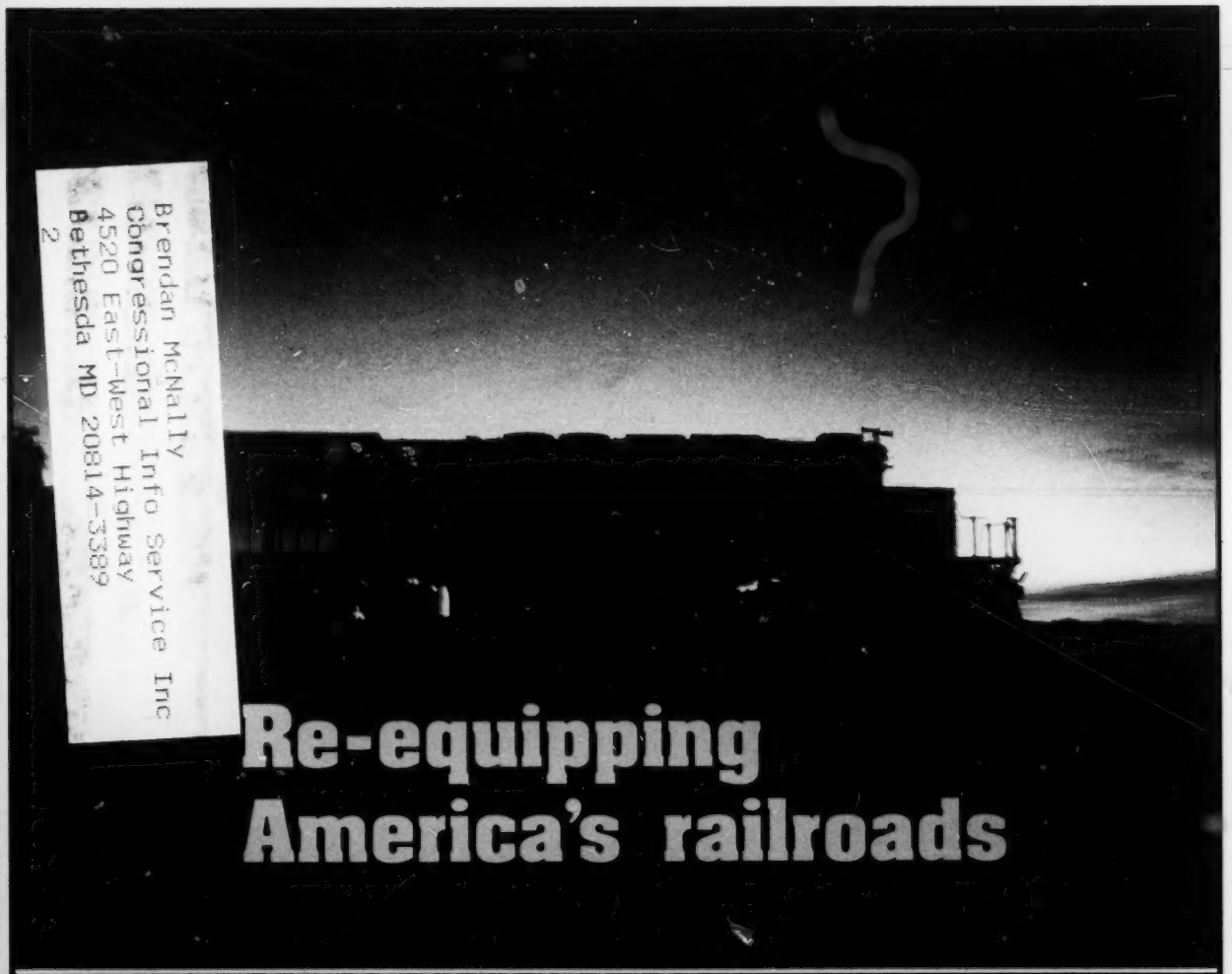

Brendan McNally
Congressional Info Service Inc
4520 East-West Highway
Bethesda MD 20814-3389
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Re-equipping America's railroads

CP Rail breaks a bottleneck

NS will serve "inland port"

Norfolk and Virginia Beach study light rail link

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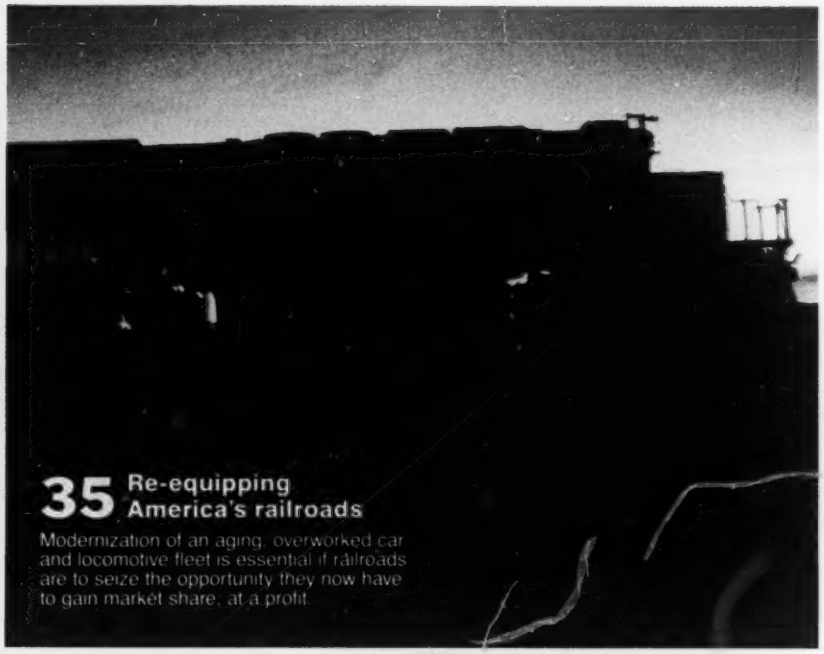
Features



35 Re-equipping America's railroads

Modernization of an aging, overworked car and locomotive fleet is essential if railroads are to seize the opportunity they now have to gain market share, at a profit.

51 What VIP means to NS

Norfolk Southern will provide the rail link between Hampton Roads and an intermodal terminal at the new "Virginia Inland Port" of Front Royal, 200 miles upstate.

61 CP Rail breaks a transcontinental bottleneck

For decades, westbound CP trains have fought grades of up to 2.2% in the mountains of British Columbia. But as of November, no more. Here's how CP cut the Selkirks down to size.

69 Pueblo tests heavy axle loads

The Vehicle Track Systems Newsletter says "dramatic" preliminary results suggest that vehicle suspension characteristics of heavier cars will have a major effect on the performance and life of the track structure.

80 Virginia Beach and Norfolk study light rail link

A proposed 18-mile line would utilize existing Norfolk Southern right-of-way, now freight-only but once a busy passenger rail route.

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Cover photo: Southern Pacific on the outskirts of Willcox, Ariz., by Gary J. Benson

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Market Outlook

Equipment

Ministry of Railways, India: Awarded a contract to the Controls and Composition Division of Harris Corp., Melbourne, Fla., for locomotive control and monitor (Locotrol II) systems to be installed on the South Eastern Railroad and the North Eastern Frontier Railroad.

Trailer Train: Will acquire 500 new auto rack flatcars at a cost of $24 million. Bids were being solicited from five manufacturers with delivery of the first cars expected to take place in January 1989. Also approved: The purchase of 20 articulated, five-platform container cars at a cost of $2.1 million; and the acquisition of a railcar repair facility in Drayton, Mich., which, with improvements, will cost $4.5 million.

Facilities

Ankara (Turkey): Is negotiating with UTDC Inc., a subsidiary of Lavalin Industries, for the turnkey supply of a heavy rail rapid transit system. In partnership with two Turkish manufacturing and construction companies, Gama and Guris, UTDC will provide all project management, system design, system engineering, equipment procurement, and vehicle supply for the $510 million (Canadian) project. UTDC will supply 108 vehicles similar to the new H6 type subway cars currently being supplied to the Toronto Transit Commission.

Conrail: Is spending $3.5 million to increase overhead clearances on 12 bridges between Chicago and Toledo. When the project is completed, Conrail will have an overhead clearance of 20 feet, 6 inches on its Chicago-Columbus line, permitting double-stack trains with high capacity containers to use the route.

Dakota, Minnesota & Eastern: As part of a $6.3-million program to upgrade 165 miles of main line between Owatonna, Minn., and the South Dakota state line, will install 130,000 new ties, 116,000 tons of rock ballast, and five miles of cwr.

Itel Rail: Will build a $4.5-million freight-car maintenance facility at Dothan, Ala., on the Hartford & Slocomb and with connections to CSXT, Norfolk Southern and Atlanta & St. Andrews Bay. The complex will consist of three buildings, a 60,000-square foot main erection and repair building, equipped with two 15-ton overhead cranes, a 10,000-square foot component-fabrication building and a 25,000-square foot paint shop.

Santa Fe: Will spend $11 million to improve its Belen, N.M., yard and related facilities. The program calls for a new yard office building, a new bridge, modified and new locomotive fueling facilities, major track reconfiguration work, and addition of a third main line track.

Revenue freight carloadings

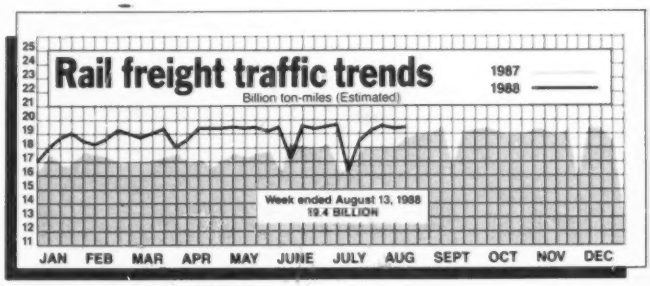
Commodity	August 13 week	August 6 week	July 30 week	July 23 week
Grain	27,087	29,203	28,629	30,548
Other farm products	2,548	2,452	2,486	3,283
Metallic ores	20,584	19,393	20,842	22,337
Coal	128,781	124,460	126,128	119,758
Crushed stone, gravel and sand	19,011	18,882	19,240	18,677
Nonmetallic minerals	10,954	10,953	11,459	10,238
Grain mill products	10,224	10,498	10,764	10,569
Food and kindred products	10,925	10,986	11,510	11,295
Primary forest products	9,833	9,538	9,581	9,869
Lumber and wood products except furniture	6,726	6,473	7,922	7,258
Pulp, paper and allied products	12,060	12,008	12,296	11,976
Chemicals and allied products	27,657	27,605	27,243	26,246
Petroleum products	5,500	5,506	4,884	5,174
Stone, clay and glass products	11,356	11,446	11,723	11,596
Coke	5,678	6,027	6,350	5,726
Metals and products	9,567	10,346	11,068	10,426
Motor vehicles and equipment	16,133	15,439	15,234	14,150
Waste and scrap materials	9,589	9,545	9,957	9,538
Forwarder and shipper assn. traffic	2,399	2,548	2,672	2,373
All other carloads	83,210	82,477	84,077	83,164
Total Cars Loaded	**430,222**	**425,785**	**434,065**	**424,221**
% change from previous year	1.7	5.0	5.0	3.4
Estimated revenue ton-miles (billions)	19.4	19.3	19.5	19.1
% change from previous year	2.2	5.5	5.9	4.6

Total:	**1988**	**1987**	**% change**
32 weeks	608.2	565.5	7.6

Piggyback loadings

	August 6 week	July 30 week	July 23 week	July 16 week
Trailers/containers	113,024	113,119	111,191	110,766

Cumulative total, 31 weeks		**% change from 1987**
Trailers/containers	3,366,388	5.5



Source: Association of American Railroads

Southern California Rapid Transit District: Has contracted with Booz Allen & Hamilton for an additional $2 million of consulting services, bringing to $8.4 million the value of systems engineering and analysis support covered in SCRTD's contract with the consultant. Of the additional $2 million, $1.8 million is for continuing services on the first segment of SCRTD's Metro Rail subway, and $200,000 is for the second segment.

Re-equipping America's railroads

The car and locomotive fleet is creaking with age; much of it is obsolete; nearly all of it is overworked. The time for re-equipping this fleet is now; and the need is urgent.

By GUS WELTY,
Senior Editor

The time has come for railroads, transportation customers, government, financial institutions and railway suppliers to think hard about transportation, rail transportation, for the year 2000.

There is a massive task looming out there in the next decade or so.

It's called re-equipping America's railroads.

It's a challenge that will have to be met.

It's a job that will have to be done.

It will cost billions of dollars.

It will be money well spent, well invested. It will produce gratifying returns for those who spend, those who invest—and for a nation that depends upon transportation to bind it together, to make commerce work, domestically and internationally.

Why should railroads "think hard"?

Railroads have a tremendous opportunity to gain market share and to do so profitably. The routes are in place, the plant is in place, and it's in better condition than it has ever been. In contrast, much of the Interstate Highway System is in disrepair and lesser but still major highways are in worse shape. The drought of '88 has demonstrated beyond any doubt that dependence upon the inland waterways system is dependence ill-placed.

There were 17 carbuilders at the top of the market; five survive, including Gunderson (pictured). They have the capacity to meet foreseeable needs, but turning capacity into capability may not be easy.

Now and over the next few years, railroads will have more technological advances at their beck-and-call than at any time since dieselization or the introduction of the computer.

• The equipment gap. The weak link is equipment, motive power and freight cars. Much of what's out there is not just old; it's inefficient and it doesn't meet the needs of today's—or tomorrow's—customers. Locomotive manufacturers can provide diesel-electrics with higher horsepower, greater tractive effort and improved fuel efficiency. Locomotive manufacturers are ready with new financing and maintenance packages. But the response has been slow. The newest, most productive units—General Electric's DASH 8 locomotives and General Motors' 60 Series—account for just a small percentage of the fleet today. To put it another way, the locomotive fleet includes more units built before 1965 than it does units built since 1980.

The picture on the freight-car fleet is a little different. About one-fourth of the cars in service, railroad-owned, are 10 years old or under—but that total includes a lot of boxcars built in the incentive-per-diem days when a railcar was a good tax shelter, regardless of anything else. More than 30% of rail-owned freight cars today are in the 20-years-and-up age

group. And with the changes that have taken place in just the past decade in traffic demand, traffic mix, this is a part of the fleet that begs for replacement.

What about transportation customers, "thinking hard"?

Customers, owners or lessors of cars, have become major providers of equipment—but many of them are not happy about the considerations they get in return for providing cars to the fleet.

In the time since partial deregulation, since passage of the Staggers Rail Act in 1980, the total car fleet has gone down from about 1.7 million units to about 1.4 million. Car capacity has gone up, to be sure, and cars are making more trips per year, moving a higher percentage of the time under load. But U.S. Class 1 railroad ownership of freight cars has dropped from more than 1.1 million at the start of 1981 to well under 800,000 today. Even if you take into account the reduction in the number of Class 1 railroads and the development of car-owning regional railroads, this is a significant reduction.

What it's going to mean for the future is that customers—especially those for very specialized equipment—may have to play an increasing role in supplying that equipment. But this will only happen, and railroads will only get the traffic, if the terms are right. With few exceptions, railroads do not seem to be in a mood, philosophically or financially, to go for investment in equipment that does not have a payback that's almost guaranteed, which sometimes means equipment locked into long-term shipper contracts.

Government's role in "thinking hard"?

Government's role is not a small one, and it could become a major one.

The present Administration has been pro-deregulation and the Congress, after long consideration, has as yet taken no action to do a rollback on the Staggers Act, no matter how hard the electric utilities and coal interests have tried to get it to do just that.

But next year there will come a new Administration, a new Congress—and, no matter who's in control, new pressures for reregulation. The proponents, outside and inside government, will still be there. Only the November elections will determine whether there are enough opponents left in influential positions to prevent a rollback to the pre-Staggers days when much of the rail industry was in bankruptcy court and the rest of it wasn't much better off.

Then, financial institutions, and the "hard-think."

• **Leaning toward leasing.** If there is one word that's heard today, in terms of equipment acquisition—by railroads, users, anybody—the word is "lease."

Many years ago, this was a word that wasn't mentioned in polite circles in the railroad business. If a Santa Fe wanted power or cars, for example, it paid its money down and bought. The former Pennsylvania Railroad was unhappy when word got out that it was leasing locomotives.

But today, lease is the word, whether it is a direct one or one that might appear to the builder as a sale.

It's only a guess, but it's probably a good one, that especially in the intermodal area, equipment that's acquired will increasingly be equipment that's leased, where railroads are concerned. As one example, Santa Fe leased double-stack intermodal equipment last year, and it leased a large number of container wells this year. The main reason: Volatility, or the fear of it, in intermodal equipment, with the possibility that equipment acquired today could be out of favor in a relatively short time, certainly in fewer years than what's ordinarily regarded as the life of a railcar.

A major carbuilder notes what's happening. It used to be, this builder says, that leasing was occasionally mentioned—but now, it's an option that is involved in just about every deal.

Finally, there are the railway suppliers, the carbuilders and the manufacturers of components, who are giving things the "hard-think." And with good reason.

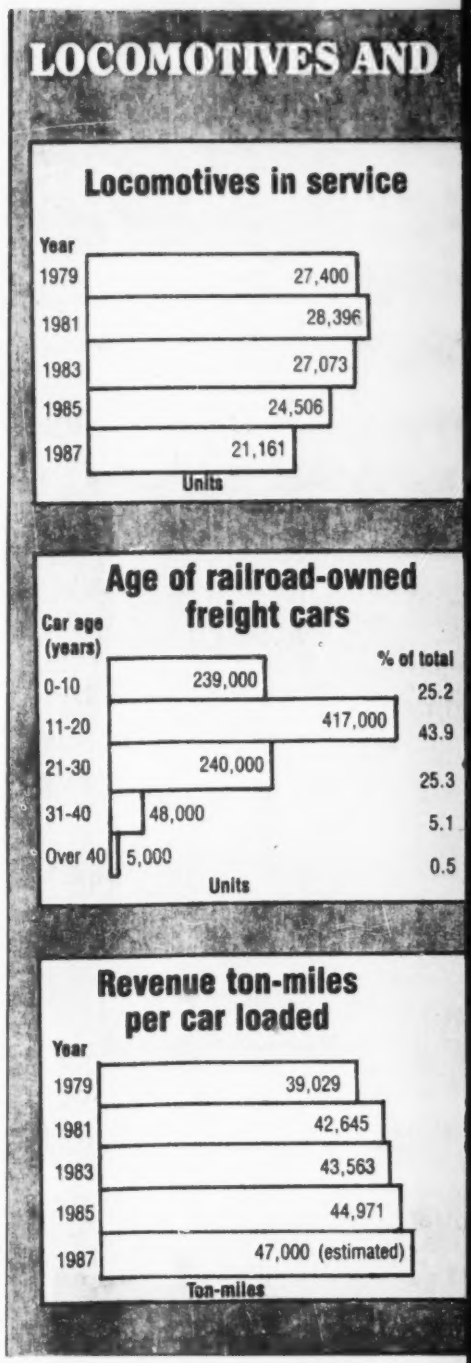
Back in the late 1970s, when the market couldn't absorb new equipment fast enough, suppliers expanded capacity, built new plants, hired new people.

Then the bottom dropped out.

The nation went into recession. In 1979, more than 95,000 new freight cars were put into service. Four years later, fewer than 6,000 new cars were delivered. In 1979, more than 1,700 new locomotive units went to work. In 1983, builders delivered fewer than 200.

Railroads, with ton-mile totals that went from 913 billion in '79 to 828 billion in '83, made-do with what they had—inefficient as it might have been, unresponsive to customer need as it might have been—because there was little choice.

By one count, there were 17 manufacturers of freight cars at the top of the market. Today, there are five, one of which is only in the tank-car business. A survivor, at another builder, remembers: At the top, he recalls, "We had about 1,900 people working here. We shut down for 18 months. During that time, we had seven people working."

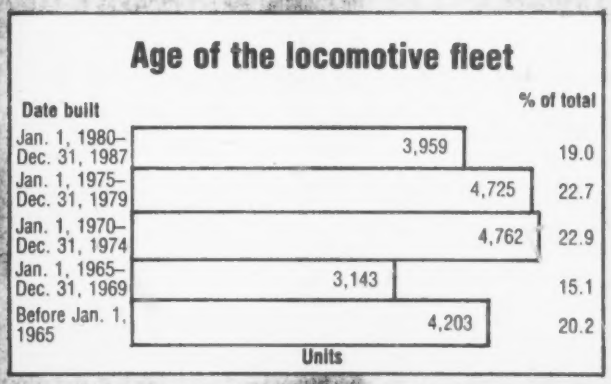


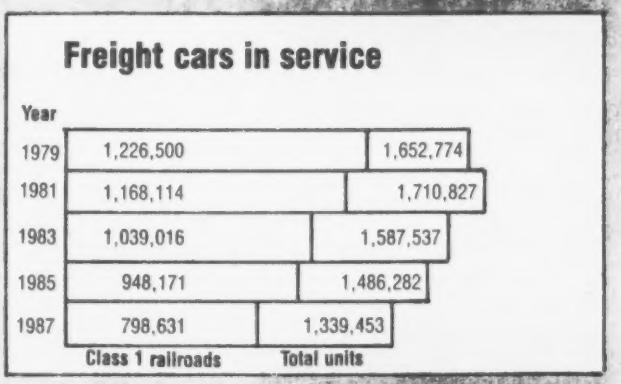
Component suppliers had similar problems. Some simply got out of the market. Others closed plants. In a few cases, new plants—built to take advantage of the boom—never opened, or at least not until now.

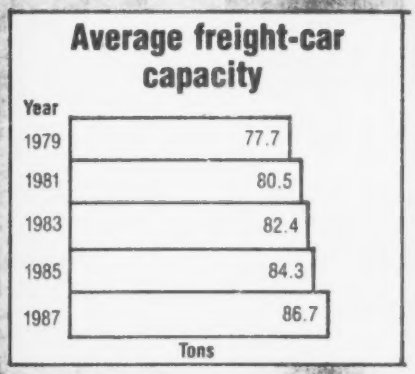
And, what about "now"?

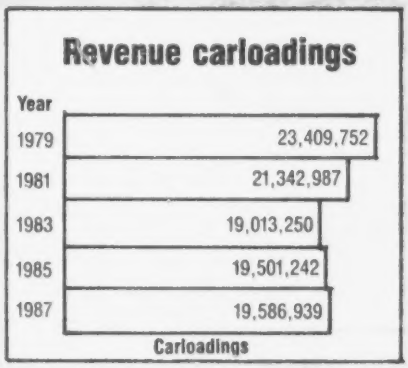
Now, the carbuilders and component suppliers who participate in the semi-annual forecast surveys made by the Amer-

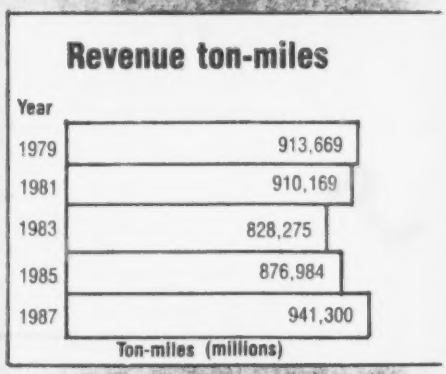
FREIGHT CARS: A shrinking, aging fleet works harder

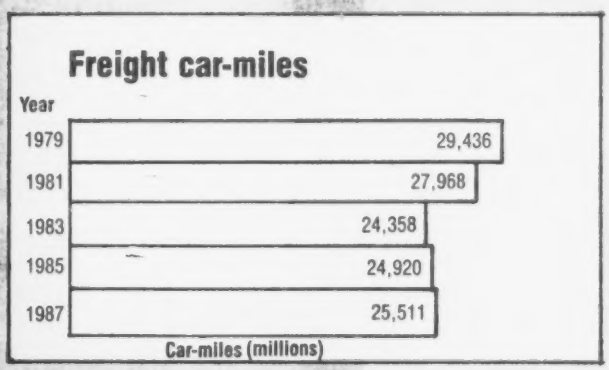


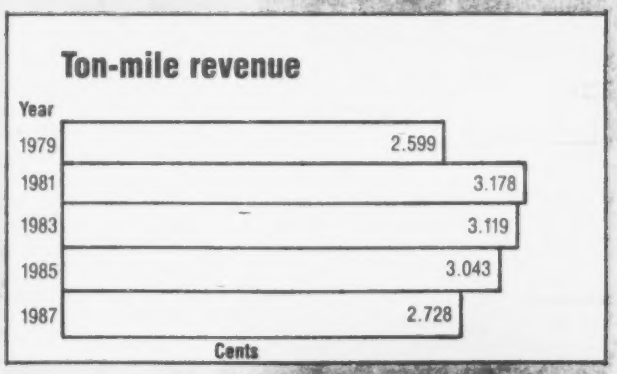












ican Railway Car Institute are optimistic—in a very cautious fashion.

Their projections of orders and deliveries—demand and production—have been going up, but slowly and carefully.

And they, above all people, have knowledge about what's possible—something that railroads and other buyers/lessors of railcar equipment may not have looked at closely enough.

Today, there are some estimates that railcar construction capacity is about 45,000 cars a year. That's low, so far as "capacity" is concerned. A more realistic figure would be in the range well above 50,000 and close to 60,000, or more than twice what the ARCI forecasts project, for near-term orders or deliveries.

But capacity and capability are two different things.

Capability is probably no more than half to two-thirds of capacity, and that brings potential production down to levels closer to what the projections are.

Labor supply is a problem. So is engineering and production management expertise. So is material and component supply, with leadtimes stretching out on steel and on some of the other basics that go into a freight car—such as axles.

It's one thing to have just two domestic suppliers of locomotives. It's something else to have just two suppliers of railcar axles, but that's the situation. And, while the capacity of these suppliers can be figured at about 35,000 carsets per year, there are fears now that the humble axle may be the first major component to come up short (with at least one builder going to Canada for a supply but with producers in Japan, Brazil, Europe, not showing much interest).

But, what are domestic suppliers to do? Hire more people, and open themselves to the obligations that this sometimes involves under union agreements? Re-open old plants or build new ones? Spend hundreds of thousands of dollars more on research-and-development that didn't pay off when similar sums were spent in the past?

If you want a true love/hate relationship, it's the relationship between railroads and suppliers—and, frankly, each group has taken advantage of the other in times past, each gouging when it was to its advantage.

So, what happens next?

For some insight into that, consider what's happening now.

• **Conflicting signals.** Nobody can have a serious complaint about rail traffic levels. Through the first seven months of 1988, carloadings were up by almost 6% from '87 levels and by 11.5% from '86 totals. Ton-mile figures were even more impressive, showing a gain of 7.8% from 1987 and of 13.9% from '86. Loadings were up in 14 of the 20 major commodity categories reported by the Association of American Railroads. In the first half of '88, railroads set a new record for grain movement. Coal loadings have been on the rise, with recent forecasts pointing to continued increases in mining activity.

—Profit margins, however, continue to be tight, even with what some see as an easing of the rate compression that has put the squeeze on margins.

—Even though there's a need for re-equipping motive power and freight car fleets, and even though equipment technology is superior to what was available a decade ago, power and cars are in competition with other technologies that may provide a quicker and greater return on investment—technologies ranging from flange lubrication systems to advanced train control systems.

—Orders for new freight cars in first-half 1988 almost doubled the total for first-half '87, 16,471 vs 8,640. At the same time, carbuilders and component suppliers are also seeing substantial increases in demand stemming from car-rebuilding programs.

—During the long depression in the equipment market, tank cars and other specialty cars accounted for most of the small amount of business there was. Now, carbuilders are looking at a redevelopment of interest in the more-standard car types, including covered hopper cars, open-top equipment and gondolas (for other-than-coal service). CSX has placed the major orders announced thus far, for 2,000 100-ton coal gondolas from Bethlehem Steel and 2,000 covered hopper cars from Trinity Industries. But the inquiry-file also points to possibly-substantial orders from other railroads coming along.

—Competition for available money seems to be indicating that railroads will be acquiring cars only where demand is guaranteed, and this means involvement with long-term contracts. At the same time, there is the always-thorny issue of car-hire,

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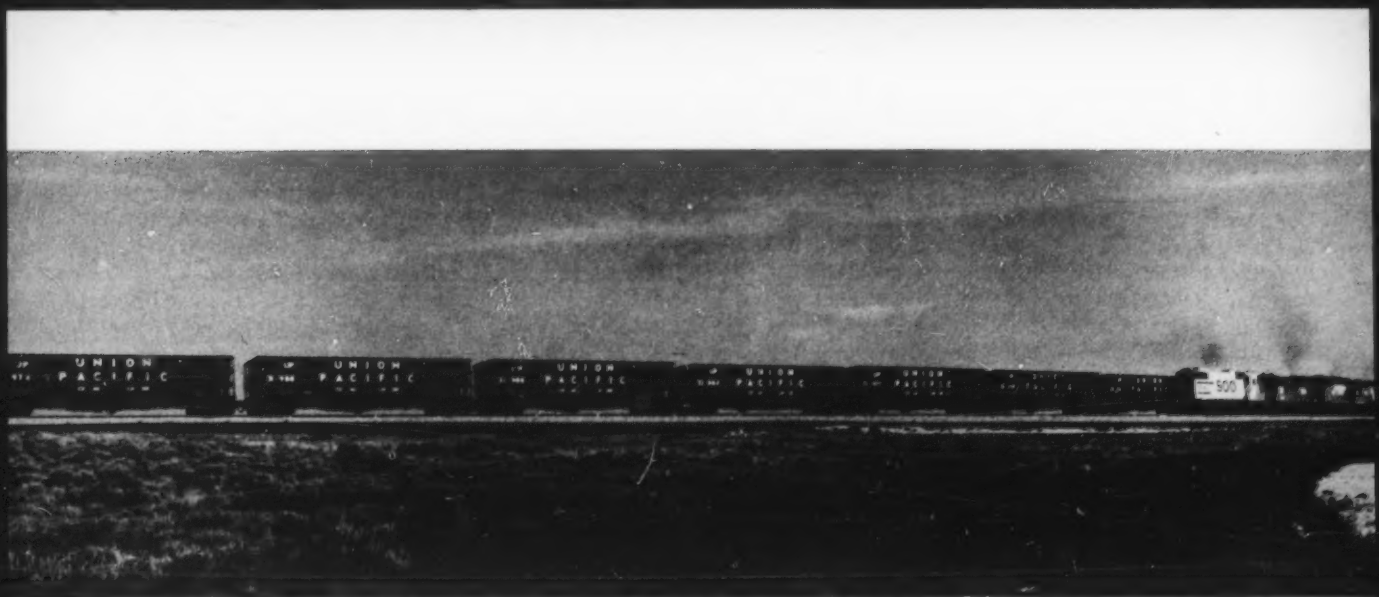

Heavy Axle Load (HAL) tests which began last month at Pueblo, Col., will help determine whether 125-ton freight cars will have a place on tomorrow's railroads.

and at least one major railroad, Conrail, is convinced that it will be shippers and leasing companies, not the carriers themselves, that will be the main advocates of free-market car-hire over the next few years—in large part because of the developing tightness in car supply in which the short-term value of cars will exceed the prescribed car-hire rates.

—Intermodal equipment continues to be the most volatile of equipment markets, not particularly because of the challenge to Trailer Train's antitrust immunity put by the U.S. Department of Justice, the Greenbrier Companies and a few others, but more because the dimensions of the business are changing and will probably continue to change. The articulated double-stack well car has been the wave-of-the-'80s. Containers now account for 40% of all intermodal traffic, as Trailer Train points out, with more than half of those containers moving in double-stack operations and, at this point, with interbox-connector equipment gaining an edge over bulkhead equipment, especially with development of 125-ton capacity equipment by Trinity, Thrall Car and Gunderson. But, for one reason or another, those cars can't now be loaded to full capacity on a number of routes. And there continues to be strong demand for single-level trailer/container cars, the articulated spine and Impack-type cars that have recently been a big part of Bethlehem Steel's production. In the meantime, there has been a fast-moving evolution in well-car dimensions, from 40- to 45- to 48-foot wells. And, just recently, 53-foot containers have begun to appear at intermodal terminals.

—RoadRailer may well be the wild-card in carless technology for intermodal. Currently, four roads are using RoadRailer: CSX, Norfolk Southern, Union Pacific and Burlington Northern, with interline movements scheduled for 1988 startup. Planned product additions include 48- and 53-foot dry vans, a refrigerated van, a flatbed and specialty units known as ContainerRailer, DumpRailer and AutoRailer, as well as a trash hauler (though not the passenger-carrying bi-modal vehicle envisioned at one point).

—Testing, which began Aug. 11 at the Transportation Test Center at Pueblo, Colo., may go a long way toward determining whether freight cars of tomorrow will really break the 100-ton barrier, going up by 20% to 125-ton capacity. With a load of information on 100-ton cars already in the data base, researchers will be looking at what happens with 125-ton cars, in the Heavy Axle Load (HAL) 16-month test program. This is a $10-million effort, designed to measure the effect of heavier loadings on rail performance, crossties and fastening systems turnouts, ballast, subgrade, and mechanical components. On the mechanical side, HAL will be aimed at an assessment of wheel wear, 100-ton vs 125-ton, and at a comparison of the performance of frame-braced trucks and conventional three-piece trucks.

—Offshore purchase of motive power and freight cars remains as an option, but one with question marks attached. Years ago, Missouri Pacific bought cars from a builder in Mexico. More recently, Trailer Train placed two orders for single-axle intermodal cars with Hyundai of South Korea. Now, Transcisco Industries has plans to build about 1,000 cars a year from kits produced by Daewoo Corp. in South Korea. On the locomotive side, there are those who believe that demand for new power will outstrip the ability of General Electric and General Motors to produce it, and that railroads will of necessity look overseas. On the other hand, past experiments with imported power—diesel-hydraulic road units from Germany which were tested by Southern Pacific and Rio Grande and a diesel-hydraulic switching unit brought over from Rumania—were one-time ventures. And, while offshore purchases of transit cars and other passenger-carrying equipment are the norm today, people-moving is pretty much the same here and there, but there's a world of difference between U.S. rail freight operations and those that exist elsewhere in the world.

—Anybody interested in acquiring freight cars might be well advised to place his order now. The most recent forecast from members of the American Railway Car Institute looks toward orders for almost 22,000 new cars this year, for 26,400 cars next year and for 27,000 cars in 1990. Those numbers are all well within the capacity of the four general carbuilders, Trinity, Thrall, Bethlehem Steel and Gunderson, plus Union Tank Car. But the bare numbers may be misleading. One carbuilder, for example, has about one-third the number of people working today as it had in the 1979-80 boom years, and that company has serious concerns about the wisdom of hiring more skilled people even if it could find them. Another carbuilder notes that a year ago, a car could be delivered in about 75 days from the time an order was placed—but now, the leadtime might be 150 to 180 days. That manufacturer, somewhat fearful that suppliers of some key components are now running at close to 100% of capability, sees deliveries of 30,000 to 35,000 cars a year in the early 1990s—"but we couldn't do it in 1988."

Backlogs are indeed building. Bethelehem Steel, for instance, will be working through next March on the 2,000-car order from CSX, and its intermodal-car line keeps working steadily, with a new order coming as an old one nears completion. Depending upon which plant and what product you're talking about, Thrall Car has backlogs that go into 1989, some stretching beyond the first quarter. Trinity is fine-tuning the operations of its Freight Car Division's plants, the former Pullman Standard plant at Bessemer, Ala., the former Greenville Steel Car facility in Pennsylvania and the former Ortner plant in Ohio, to make the most efficient use of production facilities. And even as the new-car market grows, Bethlehem Steel and Gunderson in particular call attention to the rebuild demand.

—Even though there are one-fourth the number of carbuilders today than there were a decade or so ago, competition remains tough. Three out of the four general carbuilders, for example, suddenly came up with 125-ton articulated container well cars. And it is now only the most special of specialty cars where a buyer lacks builder-options in his buying decision.

• **How to pay?** But, in all discussions of re-equipping the railroads, sooner or later it all comes down to money.

Increasingly, leasing seems to be the option of choice, finance leases, operating leases, whatever, either directly or indirectly as, for instance, in the case of PLM International's use of equipment fund partnerships, the third of which (PLM Equipment Growth Fund III) was announced recently.

But perhaps the most intriguing aspect of alternative financing is in motive power, in the concept developed on BN and, for want of a better phrase, known as power-by-the-hour, the blue-and-white EMD units and the red-and-gray LMX General Electric units now running on the otherwise-green BN.

At RAILEXPO '88, GE will be talking about financing, including third-party leasing and a variety of its support services ranging from complete turnkey programs to a la carte services such as parts supply, service engineering, locomotive remanufacture and component rebuilding. EMD will be talking about the lease maintenance facility it's opening at North Kansas City and plans to have one of the power-by-the-hour units on exhibit; GE won't have an LMX unit there, but it will have two DASH 8s, a UP 40C and an SP 40B, both 4,000-hp units, while EMD also plans to display an a.c. unit. In addition, GE will have a diagnostic information display from a DASH 8 and portable personal computers for use in demonstrating DASH*STAR, a computerized system based on a mainframe unit at Erie, Pa., which can send specific requested information to railroad maintenance and repair personnel in the field because it can receive and store detailed lifetime operating logs on each DASH 8 unit in service.

This is million-dollar-plus stuff, these locomotives. And, under today's conditions and predicted circumstances, acquisition is hard to justify on grounds of fuel economy alone, good as it is. That's why there will also be exhibits at RAILEXPO from such companies as Rockwell International, whose seven-subsystem Advanced Railroad Electronics System (ARES) includes a locomotive analysis and reporting system and an energy management system, and Woodward Governor, with an analog control for use on yard switching units to provide better responsiveness to power-change demands through provision of more precise

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engine speed and load control, and displays of technology that will be used in its digital control systems now under development.

But, financing. Paying for re-equipping, and justifying the payment. Consider some of the things some people are thinking about.

• **Paying for power.** On the locomotive side, there are real concerns about the capital costs involved in acquisition of new power—which leads some to the belief that the industry may be on the verge of a surge in remanufacturing, some done internally as Santa Fe has done, but perhaps more done by the seven or eight outside companies most heavily involved in the business.

Under this scenario, a balance would be struck—new high-horsepower, advanced-control locomotives for main line operations, and remanufactured smaller units for terminal and secondary operations.

In its extensive remanufacturing program, Santa Fe has used equipment trust financing. As for acquisition of new power, it seems inevitable that leasing will play a bigger role, some of it traditional leasing but some of it involving power-by-the-hour full lease maintenance contracts with costs tied tightly to reliability and availability.

General Electric, for one, has strong views in this area, talking of a quantum jump which will require "creative new ways of supplying and managing motive power. That creativity has to come from a partnership between ourselves, the railroads and the financial community." As GE sees it, "Current approaches to owning, financing and leasing locomotives are the biggest roadblocks to an efficient marketplace for motive power. That is why the financial community has a big role in the partnership. Innovative financial tools are required."

What kind of financial tools? Well, GE asks, "Why not a financed pool of high-quality locomotives? Not only would this be a way to efficiently deploy motive power, it would also be a mechanism for dampening out wild swings in locomotive demand."

While railroads ponder those kinds of ideas, however, there's no doubt that many of them will be taking advantage of the remanufacturing and repowering services provided by such growing operations as Republic Locomotive Works, VMV Enterprises, Peaker Services, Caterpillar and, of course, Morrison-Knudsen, which has been remanufacturing locomotives since 1972 and is now starting a remanufacturing program for BN that could add up to 125 units.

But, while it's one thing for a railroad to contract for remanufacture of its own power, it's something else to go out and find power to acquire and remanufacture. The pool of available units is shrinking and prices are rising, although they apparently have not yet gone beyond the reasonable. As GATX Leasing assesses things, "Current prices in the range of $250,000 to $300,000 for the most popular 15-year old units are consistent with engineering and economic analyses of what these units should be worth."

• **Where the car market is.** Freight cars? Start with the premise that demand for tank cars will continue to hold up—in part, as Union Tank Car points out, because "The market for new tank cars is really a series of micro-markets for individual commodities." Tank cars are built for specific services, specific commodities, and so demand in one part of the market can't necessarily be satisfied by using excess cars that had been serving another market. In other words, you can't use excess sulphur cars to

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meet the growing needs of shippers of high fructose corn syrup. In addition, General American Transportation notes, the nature of the business in broad terms plays a part: "This fleet supplies the bulk liquid transportation needs of very important industrial segments, including chemicals, petroleum products and foods. Many of these products have no viable alternative means of transportation and distribution to the inland regions of the country. Thus, we see a continued strong demand for tank cars."

That phrase "continued strong demand" also applies to the intermodal market. Trailer Train, for example, continues to grow the fleet, especially for container service, although that growth in 1989 may be somewhat less than it will be in 1988. At the same time, the builders of intermodal cars are also apparently seeing new interest in car acquisitions by others.

As for other car types—coal gondolas and hopper cars, covered hopper cars, for example—they will follow the market, and in these cases the market may mean demand for electric power generation and federal government export policies regarding grain.

And as it happens, segments of the forest products industry may provide an example of market drive. Over the past two years, close to 3,000 center-partition bulkhead flat cars have been placed in service, bringing the total fleet to almost 5,000 cars. And, although total loadings in forest-product commodity categories have not increased, there are at least some indications that railroads are beginning to recapture some of the traffic that had been lost to motor carriers. And in an allied area, railroads are acquiring cars to service the paper industry—which means, among other things, that Gunderson will be building high-cube boxcars for the first time since 1979.

And somehow, the myriad questions about financing will be resolved. How? Probably in any number of ways, with specific packages tied to specific needs. Connell Finance, for instance, sees "more leasing, but more traditional leasing than a continued increase in operating leasing. Why? The 15-year lease of a unit of rolling stock is considerably less expensive than a five-year operating lease for the same item." Macdonald & Company, meanwhile, sees opportunity in both financing and re-financing. Financing for re-equipping the railroads is available, Macdonald says, "but the bigger challenge is to develop more efficient, lower-cost financings which place the various components of any financing in the hands of the entity best able to maximize the return or mitigate the risk of a given component." Re-financing? Tens of thousands of existing cars are subject to existing financings "which potentially can be restructured and renegotiated to assure railroads of continued availability of needed equipment, allow for planned maintenance and rebuild programs, and at the same time offer lessors a more predictable and less speculative return."

The manufacturers are ready. They are also cautious, determined to avoid the kind of herd-instinct that built up capacity in the late 1970s just in time to see the bottom fall out of the market in the early 1980s.

That practical, pragmatic stance was probably summed up best at the recent *Railway Age*/Irving Trust conference on re-equipping, in the view from Trinity's Freight Car Division: "The real question is not capacity, but how quickly can we turn on that capacity. We have concerns about safety, quality, cost containment. We won't expand too rapidly, and we won't expand without backlog." ■

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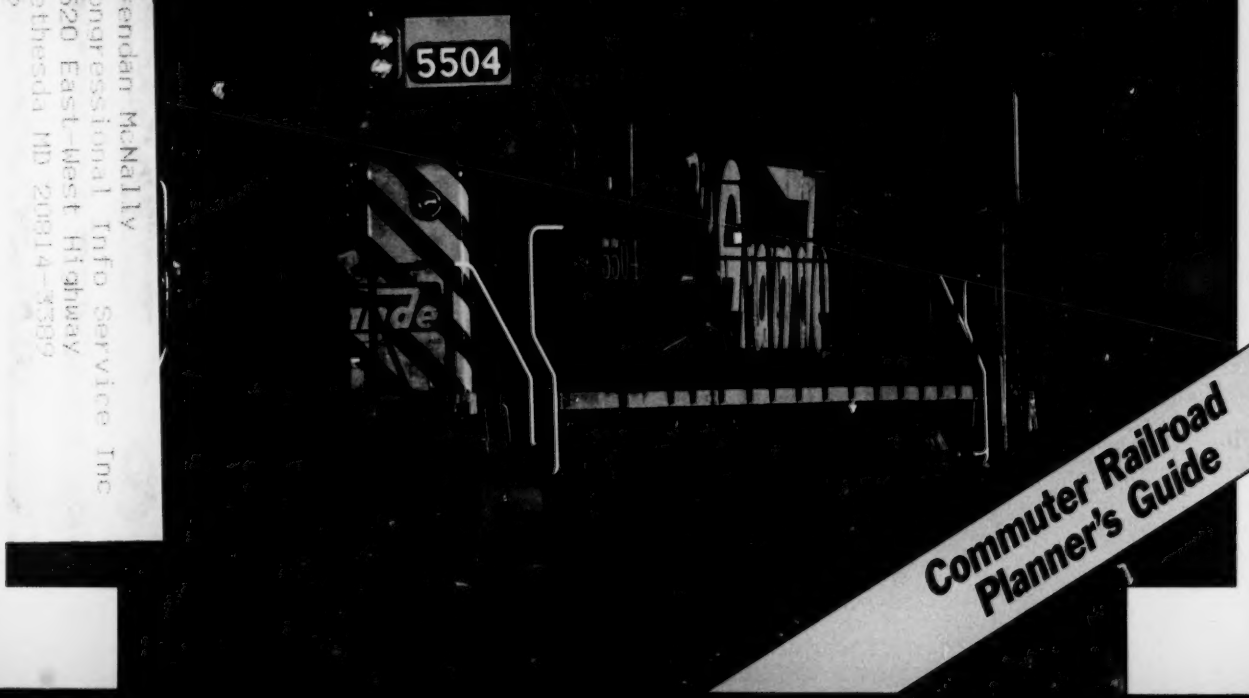

Commuter Railroad Planner's Guide

October 1988

Railway Age

...for the new age of railways and rail transit

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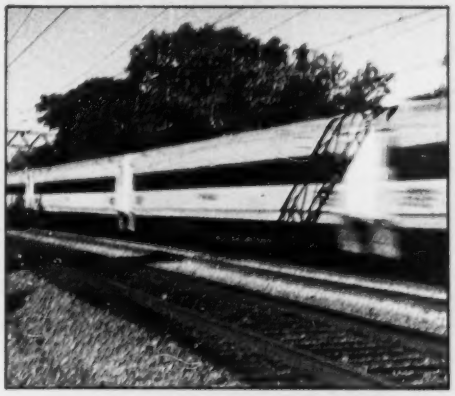
COMMUTER RAILROAD PLANNER'S GUIDE

"All aboard, America!" CG3
In their 150th year of operation, commuter railroads are staging a comeback as old systems spruce up and new ones emerge.

Who's who in commuter rail ...CG16
Need assistance in planning, designing, equipping or operating a commuter line? Here's a guide to companies that can help.



Metro-North photo on p. CG1 by Kent Patterson

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Sale of SP to Rio Grande Industries will produce a railroad better able to compete against UP and BN—and, ironically, against Santa Fe, the other half of seller SFSP.

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Market Outlook

Equipment

CSX Equipment: Will rebuild 16,000 freight cars in 1989, at a cost of approximately $300-million.

CSX Rail Transport: Is acquiring 50 new locomotives—40 4,000 hp Dash 8-40Cs from General Electric Co. and 10 3,800 hp SD60s from the Electro-Motive Division of General Motors.

Itel Rail Corp.: Placed a $13-million order with Thrall Car for 300 73-foot-long, center-beam flatcars for hauling lumber. They will be equipped with end-of-car cushioning and a new tie-down system designed for safer handling. Deliveries are to be completed in October.

Long Island: Will acquire 10 prototype double-deck commuter cars from Tokyu Car of Japan at a cost of $22.4 million (*RA*, April, p. 55).

Pullman Leasing: Ordered 300 general purpose tank cars from Union Tank Car for delivery during the first quarter of 1989. The order includes 20,500 and 23,500 gallon exterior coiled and insulated tank cars and 30,000 gallon non-coiled, non-insulated cars.

- Purchased 95 20,000-gallon coiled and insulated tank cars from Union Carbide Corp. Following complete reconditioning, the general purpose tanks will become available for lease.
- Purchased Union Tank Car's entire grain-type covered hopper fleet, a total of 2,536 cars. This brings Pullman Leasing's total fleet size to approximately 33,000 cars, representing an investment of almost $900 million.

Southeastern Pennsylvania Transportation Authority: Harmon Industries signed a $2-million contract with New York Railcar for the supply of Harmon ULTRACAB 100 cab signal and automatic train control equipment to be installed on 217 SEPTA cars and/or car pairs.

Facilities

Chicago Transit Authority: General Railway Signal is the apparent low bidder, at $14.4 million, for installation of an interlocking system on CTA's North/South Route.

Conrail: Will invest $2.3 million to upgrade sections of its Mon Line, linking Pittsburgh with Monongahela, Penn.

CSX Transportation: Will begin a $10.3 million improvement program at its Jessup, Md. automotive distribution center. Improvements will include increasing railcar spots to 75, vehicle bays to 6,400, and truck docks to 75.

Norfolk Southern: Will lay around 600 miles of cwr and install approximately 1.8 million crossties this year and has a similar program in mind for 1989. These levels of activity are lower than those of recent years, notes Edward R. Burwell, executive vice president-operations, because "we've caught up with any deferred maintenance we had, plus we're spinning off some lines that eat up a lot of rail and crossties."

PATH: Awarded a $49.6-million construction contract for a 207,000-square-foot car shop at Harrison, N.J., the last major contract for the $205-million maintenance and repair facility. The contract went to the low bidders, a joint venture of Joseph L. Muscarelle, Inc., of Maywood, N.J., and Gemini Construction Corp. of Newark.

Revenue freight carloadings

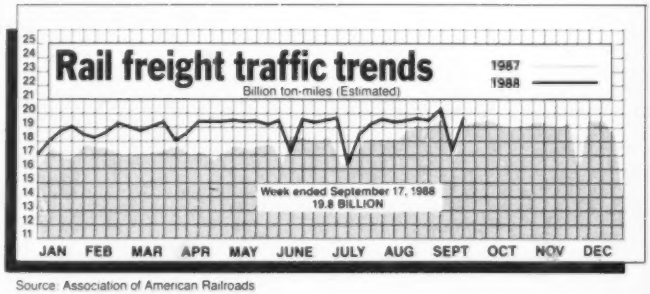
Commodity	Sept. 17 week	Sept. 10 week	Sept. 3 week	Aug. 27 week	Aug. 20 week
Grain	31,264	23,867	25,957	25,230	27,926
Other farm products	3,320	2,375	2,319	2,251	2,379
Metallic ores	20,895	18,481	20,791	17,397	21,490
Coal	128,302	120,327	134,865	132,743	132,708
Crushed stone, gravel and sand	19,545	15,612	19,200	19,520	19,387
Nonmetallic minerals	10,816	9,526	11,106	11,206	11,078
Grain mill products	11,112	9,634	11,731	10,973	10,095
Food and kindred products	10,919	9,277	11,209	11,196	11,185
Primary forest products	10,171	8,440	10,285	9,871	9,750
Lumber and wood products except furniture	7,366	5,666	7,307	7,333	7,037
Pulp, paper and allied products	12,182	11,970	12,687	12,247	11,913
Chemicals and allied products	28,106	24,798	28,297	27,720	28,309
Petroleum products	5,276	4,545	5,230	5,463	5,702
Stone, clay and glass products	11,416	10,154	11,527	11,144	11,430
Coke	5,676	5,568	5,877	5,782	5,988
Metals and products	10,368	8,980	11,071	10,727	10,075
Motor vehicles and equipment	21,470	16,874	19,470	19,227	18,559
Waste and scrap materials	9,993	7,871	10,230	9,856	9,756
Forwarder and shipper assn. traffic	2,379	1,986	2,586	2,343	2,349
All other carloads	88,301	74,582	88,233	86,622	85,053
Total Cars Loaded	**448,877**	**390,533**	**449,978**	**438,851**	**442,169**
% change from previous year	1.2	1.9	2.1	1.5	3.0
Estimated revenue ton-miles (billions)	19.8	17.2	20.3	19.7	19.9
% change from previous year	1.5	4.6	2.6	1.8	3.5

Total:	1988	1987	% change
37 weeks	707.8	659.7	7.3

Piggyback loadings

	Sept. 10 week	Sept. 3 week	Aug. 27 week	Aug. 20 week	Aug. 13 week
Trailers/containers	97,123	119,054	116,742	115,862	112,959

Cumulative total, 36 weeks		% change from 1987
Trailers/containers	3,928,300	5.6


Rail freight traffic trends
Billion ton-miles (Estimated)
1987
1988
Week ended September 17, 1988
19.8 BILLION
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

Source: Association of American Railroads